
No. 2759

IN THE

United States Circuit Court of Appeals

For the Ninth Circuit

MAY SESSION, 1916

COLUMBIA GRAPHOPHONE COMPANY

(a corporation),

Appellant,

vs.

SEARCHLIGHT HORN COMPANY

(a corporation),

Appellee.

BRIEF FOR APPELLEE.

Filed

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Statement of Facts and History of the Litigation.

This is an appeal from an interlocutory decree in favor of appellee, plaintiff below, against the appellant, defendant below, sustaining a patent and awarding the usual relief for infringement thereof, said decree being dated and entered December 2, 1915, in the District Court of the United States for the Northern District of California (Record 921-5).

The patent involved is No. 771,441, of October 4, 1904, issued to Peter C. Nielsen, for a phonograph horn. It has heretofore been before this court and favorably considered in the following cases:

Sherman Clay & Co. v. Searchlight Horn Co.,
214 Fed. 86;

Same v. Same, 214 Fed. 99;

Pacific Phonograph Co. v. Searchlight Horn Co., 214 Fed. 257;

Sherman Clay & Co. v. Searchlight Horn Co., 225 Fed. 497;

Pacific Phonograph Co. v. Searchlight Horn Co., 225 Fed. 500.

The first of the above cases was on writ of error to a final judgment in favor of Searchlight Horn Company sustaining the patent and awarding damages for its infringement. The next two cases were on appeal from orders granting preliminary injunctions. The last two were appeals from subsidiary orders in equity cases. All of the decisions were in favor of the Searchlight Horn Company.

The sequence of facts constituting this chain of litigation is as follows: On May 9, 1911, the Searchlight Horn Company commenced an action at law for the infringement of this patent against Sherman Clay & Company in the United States District Court for the Northern District of California. Judgment was rendered therein in favor of the patent on October 4, 1912. Writ of error was prosecuted to this court in that case, and on May 4, 1914, the judgment was affirmed (214 Fed. 86).

After judgment in that case in the lower court equity suits for injunctions were brought by Searchlight Company against Sherman Clay & Co. and Pacific Phonograph Company, and from orders granting preliminary injunctions appeals were taken to this court where the orders were affirmed on

May 4, 1914 (214 Fed. 99; 214 Fed. 257). The two equity cases were then remanded to the lower court for final hearing. But before such hearing defendants therein moved the lower court for an order restraining the prosecution of the cases until the final determination of similar cases which had been brought by the Searchlight Horn Company in New Jersey against other parties. These motions were denied, and upon appeals being taken the orders were affirmed on August 9, 1915 (225 Fed. 497; 225 Fed. 500). These rulings cleared the obstacles standing in the way of a final hearing of the equity cases on the merits, and thereafter on May 7, 1915, the equity case of *Searchlight Horn Company v. Sherman Clay & Co.* was tried in open court on final hearing and resulted in an interlocutory decree in favor of Searchlight Horn Company. From that decree Sherman Clay & Co. prosecuted an appeal to this court and filed a transcript of record, but on February 21, 1916, they voluntarily dismissed said appeal and the case was remanded to the lower court with instructions to proceed with the accounting.

The next equity case to come on for final hearing was that of *Searchlight Horn Company v. Pacific Phonograph Company*, which case was tried on November 29, 1915, and on December 2nd, following, an interlocutory decree was entered in favor of Searchlight Horn Company in the usual form. An appeal was taken from that decree by Pacific Phonograph Company to this court, and a transcript of

the record has been filed. The case is No. 2770 and has been assigned for hearing on June 2, 1916. The record in that case, however, has not been printed, and under the rules of this court the appeal will be dismissed. Evidently the Pacific Phonograph Company at the eleventh hour concluded that they could not prevail on the appeal and allowed the same to be dismissed. Sherman Clay & Co. on appeal from the interlocutory decree in their case had taken a similar view when they dismissed their appeal. The facts hereinabove stated all appear from the various records now on file in this court.

This brings us to a consideration of the case in hand, that of Columbia Graphophone Company. The bill in this case was filed July 24, 1913 (Record 8), and the answer on October 20, 1913. At that time the litigation with Sherman Clay & Co. and Pacific Phonograph Company was still pending and undetermined; consequently, the Columbia people played "a waiting game" with the hope that the Searchlight Company might be defeated in its controversy with Sherman Clay & Co. and Pacific Phonograph Company, in which event the Columbia Company would claim the advantage thereof without having been put to the expense of a trial. We did not object to this course. Consequently, on January 6, 1914, a stipulation was entered into reciting the pendency of the other litigation in the court of appeals, and that the decision therein would have influence on the decision in the case at bar, and by

reason thereof the time for the taking of testimony was extended (Record 31-3).

Thereafter further extensions were granted as follows: April 13, 1914; May 14, 1914; June 9, 1914; June 24, 1914 (Record 33-36).

In the meanwhile a preliminary injunction had been granted on March 22, 1915 (Record 66).

These proceedings, extensions, stipulations, etc., brought the matter down to final hearing on November 23, 1915, at which time the case came on for final hearing together with the companion case against the Pacific Phonograph Company. This last named case was tried first, and by stipulation it was agreed that the Columbia case should be submitted on the testimony taken in the Pacific Phonograph case and the Sherman Clay case, and upon certain other matters of fact which were stipulated to (see stipulation of June 10, 1915, at pages 74-75, Vol. 1 of the record herein). In other words, the Columbia Company took no testimony of any kind, character or description whatever; but submitted its case under the aforesaid stipulation upon the testimony and proceedings taken and had in the suit of Pacific Phonograph Company.

Both the Pacific Phonograph and Columbia companies prosecuted appeals to this court and filed transcripts of the record; but, as already remarked, the Pacific Phonograph Company has failed to print its record and has abandoned its appeal, which we think is a clear intimation from them to this

court that they had no hope whatever of securing a reversal.

The Columbia Company has printed its record. That record, however, has omitted a large portion of the testimony taken in the Pacific Phonograph case. In the Pacific Phonograph Company case the main issue was an alleged anticipation by prior use at Pittsburg, and more than a thousand pages of testimony were taken on that issue, all of which testimony, every syllable of it, has been omitted from the Columbia record, although it was included in the transcript of the record in the Pacific Phonograph Company case now on file in this court. At the trial, plaintiff's attorney offered in evidence "all the testimony, depositions, and exhibits" that were offered in evidence in the Pacific Phonograph case constituting its *prima facie* case; thereupon defendant's attorney offered in evidence "all of the depositions, exhibits and testimony or other evidence offered on behalf of defendant" in the Sherman Clay & Co. case and the Pacific Phonograph Company case; after which plaintiff offered in evidence all the rebuttal depositions, etc., taken in the Sherman Clay & Co. and Phonograph cases (see Record, Vol. 1, pages 78-9).

Notwithstanding these facts the appellant has brought to this court only a portion of the record on which the case was tried, having omitted more than a thousand pages of testimony together with accompanying exhibits, and upon this abbreviated, maimed, and impotent record now before the court

asks for a reversal. In other words, this court has not before it in this case the entire record which was before the lower court and upon which the lower court rendered its decision, and in view of the rule that the appellant must file "a complete record" (Rule 14, Sec. 3), does not this appeal fall of its own weight? We merely suggest the matter to the court for its consideration without insisting on it, preferring to ask a decision on the merits of the issues which are presented by the appeal.

Argument.

It is impossible for us to know in advance what points will be urged by appellant. An omnibus assignment of errors, comprising 23 in all, has been filed (Record 927-932); but it is palpable that the major part thereof will be abandoned. We apprehend that the main points urged will relate to the validity and construction of the claims of the Nielsen patent, and that such construction thereof will be urged as to avoid infringement. At the present time, therefore, we can do no better than to exploit the Nielsen patent from our own standpoint and ascertain therefrom what was the invention made and then see if it is adequately covered by the claims. The matter having been so exhaustively considered by Judge Van Fleet in the numerous cases which were before him, and his rulings having been all affirmed by this court, it would appear that nothing more than a recapitulation of what has already been decided is necessary at this time.

SOME ELEMENTARY PRINCIPLES OF SOUND.

In analyzing the Nielsen patent to ascertain the nature of the invention, it will be helpful to keep constantly in mind certain elementary principles of sound which underlie the subject-matter. These principles are well known to physicists and are beyond the pale of doubt; consequently, it will merely be necessary for us to refer to them in the most general terms.

Sound is the product of vibrations, and without vibration there can be no sound. There may be vibrations without sound, but there can be no sound without vibrations.

The next requirement is that there must be some medium through which the effect of the vibrations of the sound-producing body is conveyed to the human ear. This medium ordinarily is the surrounding atmosphere. The vibrating body throws into a state of excitement the air immediately surrounding it, thereby producing sound waves, so called, which ultimately reach the human ear and produce in the brain the sensation of sound. These sound waves are analogous to water waves, being propagated one after the other in succession in substantially the same manner as water waves. If a pebble be dropped into a pond of still water, a succession of concentric waves or ripples will be produced extending to the edge of the pond. These waves do not travel, although they appear to do so, but each one produces the next one, and then subsides.

Sound waves in the atmosphere are produced in the same way. The vibration of the sounding body disturbs the layer of air adjacent thereto and causes a concentric wave to arise which partakes of the character of the vibration producing it. This initial wave acts upon the next layer of air to form a similar wave and then subsides. The second wave in the same way produces a third wave and then subsides. This operation is continued until the human ear is reached, and then the last wave acts upon the auditory mechanism therein contained and through the auditory nerve an impression is conveyed to the brain, which we call the sensation of sound.

It is apparent that sound waves will differ from one another as to shape, size, form, etc., according to the difference in the vibrations of the sounding body, because the vibrations in the sounding body determine the character of the sound waves. Consequently, if the vibrations be violent, the sound waves will be correspondingly large and their amplitude great; whereas if the vibrations are feeble, the sound waves will be small and their amplitude correspondingly small. Again, different bodies have different forms of vibration, and, consequently, the sound waves produced thereby will be different, and the resultant sounds different. Organs, violins, trumpets, flutes, bells, gongs, etc., produce different sounds because they have different forms of vibration. Still further, a bell made of silver produces a different sound from a bell made of brass or iron.

A drum produces a different sound from a metal gong. This is due to a difference in the character of the material forming the sounding body.

Sounds are distinguished from one another by three different characteristics, viz: (1) By the greater or less amplitude of the vibrations of the sounding body, known as *loudness*; (2) By the number of vibrations of the sounding body during an increment of time, known as *pitch*; and (3) By the peculiar and characteristic form assumed by the sound waves consequent upon the form of the vibrations, known as *timbre*.

One other principle of sound will be necessary to note at this time, and that is the law which relates to the reflection of sound when sound waves strike an interfering body. In that case the law is the same as the law of light, to wit, that the angle of incidence is equal to the angle of reflection.

With these principles of sound kept constantly in mind, the next step will be a consideration of phonograph horns in general.

PHONOGRAPH HORNS IN GENERAL.

As the first and fundamental step in this discussion we must obtain a clear idea of the purpose and function of a phonograph horn, and this is made especially necessary by reason of the fact that the term horn when used in connection with a phonograph, is scientifically inaccurate and can be tolerated only on the theory that the implement bears a general appearance in form to a horn proper.

A phonograph horn is in no sense "a horn", as that term is understood in the musical art. In the case of a horn proper, as connected with the musical art, the music is produced or created by the mechanical vibrations of the horn itself, and without such vibrations there would be no music. The musician blows air through the mouthpiece of a cornet, trombone, or other musical instrument, and these puffs of air, thus created, impinge upon the interior surface of the horn and produce in it a set of vibrations corresponding in form to the waves produced by the puffs of air generated by the musician. These vibrations of the horn in turn produce and create similar vibrations in the air, which reach the human ear in the form of sound waves loaded or impressed with the resonance or tintinnabulation of the horn. Consequently, horns of different size, shape, and material will produce different sounds. The sound of a cornet is different from that of a trombone and still different from that of a flute or an organ. The primary object of all musical horns is to produce and create vibrations, and, consequently, such form of horn is used in the musical art as is most conducive to the creation of vibrations.

When we come to consider the so-called horn used with a phonograph, we meet with a wholly different situation. In that case the sole purpose of the horn is to allow the sound waves emanating from the phonograph to pass through the interior of the horn on their way to the ear of the listener. Speaking in the popular sense, the music has already been

created and stored up on the phonograph disk ready for reproduction, and all that the horn is supposed to do is act as a conduit therefor. The popular term "canned music" is descriptive of the situation.

Such being the function of the phonograph horn, it is highly desirable that the music, or rather the sound waves, should be allowed to pass through it without being contaminated or adulterated by outside influences. When we listen to a song by Caruso or Eames, we desire to hear it reproduced in all its purity, exactly as it was originally sung by the artist, and it is highly desirable in such case that the harsh, squeaky, tintinnabulations of the horn should not be allowed to mix and mingle with the musical notes being reproduced. The phonograph horn is intended merely as a conduit or passage-way through which the music is to pass. It is analogous to a water pipe through which water passes. And just as it is desirable that the water shall be delivered from the pipe without contamination or adulteration received from the interior surface of the pipe, so it is equally desirable that sound waves passing through a phonograph horn should not be contaminated or adulterated by the results consequent upon the vibrations of the horn. Such adulterations have been denominated by this court as "metallic resonance or tintinnabulation" (214 Fed. 95).

In fine a phonograph horn is not intended to *produce* any music, nor to do anything to the music, nor to allow anything to be done to the music. On

the other hand, a musical horn proper is intended to *create* and *produce* the music itself. Hence it is constructed of such material and in such form as will best produce vibrations. To put the two cases in sharp distinction, a phonograph horn must have a minimum of vibration, while a musical horn must have a maximum of vibration. With this distinction clearly in mind, the next step to consider will be the state of the art with reference to phonograph horns existing at and prior to the time of the Nielsen invention.

STATE OF THE ART PRIOR TO NIELSEN.

On this subject there is practically no dispute. When phonographs were first invented and for a few years thereafter, no horns were used at all; but in lieu thereof ear pieces attached to the tubes emanating from the phonograph were inserted into the ears of the listener, and he alone heard the music which was being reproduced.

With this method only a single person could listen to a phonograph at one time. To overcome this obstacle, Mr. Edison provided a horn whereby the music could be thrown out into the open air to be listened to by any number of persons. This horn was a small, insignificant affair, made of a single piece of sheet metal wrapped around a form in the shape of a cone and being a few inches in length. It was substantially of the same shape as a fish horn.

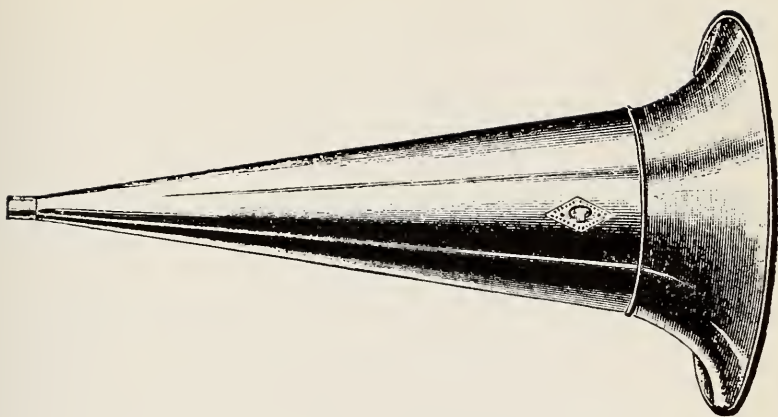
Such horn was for some years supplied with all of the phonographs by the manufacturers and sold

as a part of their equipment. It proved, however, to be wholly inefficient and the result was that the dealers in phonographs discarded it entirely and substituted in its place and stead when selling the phonograph a different style of horn much larger in size and different in form and construction.

The horn thus substituted went into extensive use and was known as the B & G horn, taking such name from the fact that a portion of it was made of material having a gold color while the remainder was made of material having a black color. The letters B & G constitute an abbreviation of the words Black and Gold (Record 119).

This B & G horn was made of a body piece proper and a flaring bell. The body piece was made of a single sheet of metal cut in a triangular shape and then wrapped around a conical mandrel, the edges being fastened together by solder, brazing, or lock seams, so as to produce a cone-shaped body. To the outer end of this cone was attached a flaring bell made of spun brass. The attachment of the bell to the cone was by means of some appropriate joint well known in the sheet metal art.

On the adjoining page is a reproduction of the B & G horn as used prior to Nielsen's invention, and below it is a cut of the famous Victor trade mark representing a fox terrier listening to the music emanating from a B & G horn. This trade mark, known as "His Master's Voice", is said to be one of the most valuable trade marks in the



BLACK AND GOLD HORN



VICTOR TRADEMARK

world, worth many millions of dollars to the Victor Talking Machine Company.

This B & G horn is also shown and illustrated in the U. S. patent to Marten, No. 738342 of Sept. 8, 1903; British patent to Fairbrother, No. 17,786 of 1902; British patent to Tourtel, No. 14,730 of 1903, and others.

In addition to this B & G horn there was another one in use made entirely of brass but being of the same shape and form as the B & G. It was known as the all-brass horn.

It may be remarked that there also existed prior to Nielsen several other horns of a nondescript character, but they made no impress on the art and were all ultimately abandoned. One of these horns was known as the Kaiser horn, which was a horn made of paper and was soon abandoned. Other horns made of glass, celluloid, fibre, and wood were also tried; but they, too, were abandoned as impracticable, and at the time of the Nielsen invention the horn universally used as the best product up to that time was the B & G horn. We will, therefore, take that horn as the representative of the prior art.

DEFECTS OF B & G HORN.

That horn had decided defects. While it was the best that had been produced up to that time, it was far from satisfactory. In view of the present advanced state of the art the most casual consideration will be all that is necessary on this point. As

stated before, the B & G horn was made in two pieces, a long cone and an attached spun bell. The cone was made of a single piece of metal shaped around a conical mandrel. The bell was of spun brass attached to the outer end of the cone by a seam or otherwise.

When the sound waves from the music box entered the small end of the horn they struck against the interior surface and then bounded back like rubber balls and finally passed out the large end of the horn. This impingement of the sound waves against the surface of the horn caused the horn itself to vibrate, and these vibrations of the horn created sound waves of their own which mixed and mingled with the musical sound waves passing through the horn and thereby added to them their own characteristics. These characteristics consisted of a harsh, squeaky, metallic sound, which has been denominated by this court "metallic resonance or tintinnabulation". In this way the musical sounds become contaminated and adulterated, and the music was necessarily rendered impure.

Considering the reason for this from a scientific point of view the matter is now quite plain. The vibrations of the horn were of large amplitude because the horn was made of a large single piece of metal. A long string offers a field of wider vibrations than a short string; a large plate offers a wider field than a small one. Now as the loudness of a sound is measured by the amplitude of the vibrations of the sound-producing body, it follows

that a loud sound is the product of vibrations of wide amplitude. In the B & G horn the sounding body was a plate of extended superficial area. Consequently, its vibrations were of wide amplitude and the resultant sounds were louder. These loud sounds produced by the vibrating horn were of sufficient loudness to be audible, and when they were mixed with the musical sounds the result was a combination of musical and non-musical sounds. The notes of the singer or musical instrument were mingled with the squeaky tintinnabulation of the tin horn. In the light of the present art, this conclusion is clear. The defect was apparent prior to the Nielsen invention, and many efforts were made to remedy it, but it remained for Nielsen to provide the remedy.

The object of the Nielsen invention was to overcome this defect of the prior art, and that his invention did overcome it has long since been placed beyond the pale of doubt. How he overcame it we will show later on. At present we are concerned only with the fact that such defect existed, and that others had tried to overcome it without success.

The situation as it existed prior to Nielsen is clearly stated by the disinterested witness. Merritt, who has been intimately connected with the art since 1889, fifteen years prior to the Nielsen invention. At pages 119-20 of the record we read from his deposition:

“With both of these horns, namely, the brass horn and the B & G horn, I frequently noticed

what we called the 'blast', namely, a sudden swelling or confusion of sound. This blast or sudden or undesirable increase of sound would become apparent under various circumstances, as, for example, in particular with certain qualities of voice or certain notes or with certain classes of instruments. This was so pronounced at times as to make very disagreeable results. This was due in part to defects in the records or in the production of the records, and for a number of years improvements were made in the records that tended to eliminate these confusion sounds and blasts, but in spite of all that could be done toward improving the records this blast continued to a certain extent because, as we afterwards found out, of the construction of the horns that were then in use. The idea that was prevalent through the phonograph trade prior to the introduction of the Nielsen horn was that the blast or confusion of sound could be eliminated by making the horn as seamless as possible. The belief was that the presence of seams caused a rattling or vibration that interfered with the purity of certain tones, particularly of certain quality of voices and of certain instruments, and that the greatest purity of tone could be attained by making the horn seamless, and for this reason the brass horns were made without seams. In the small brass horns the entire horn was spun out of a single piece of metal; in the larger horns, where the bells had to be made separately from the cones, the two parts were spun separately and brazed together by a joint that was finished so as to be practically seamless.

In the B & G horn the horn was made with as few seams as the construction would allow. In spite of this elimination or attempted elimination of the seams, we noticed the undesirable vibration that kept interfering with the purity

of the tone reproduced from the records, and this difficulty was pronounced and interfered to a considerable extent with the proper use of the records."

From this testimony we note a most impressive fact. The idea prevalent at that time was that if there were seams in the horn they would cause a rattling or vibration which would interfere with the purity of the reproduced musical tones. Consequently, it was thought advisable prior to Nielsen's invention to make the horn as seamless as possible. For that reason the old B & G horn was made with only a single seam and the all-brass horn without any seams at all. This idea appears to have been drawn by analogy from the construction of musical horns, which of course were always seamless, and experts in the phonograph art seem to have adopted that analogy as applied to phonograph horns. But the idea was an erroneous one, and the analogy was false. The function of a phonograph horn is so different from the function of a musical horn that there can be no similarity of construction between them. The musical horn is for the purpose of *producing* music by its vibrations, and hence it must be as seamless as possible. The phonograph horn is intended solely for the purpose of *conveying* music there through which has otherwise been produced, and therefore its construction must be such as to prevent vibrations of its body part which would result in the production of audible metallic sounds. Here, then, we find the

most apt illustration of the exercise of the inventive faculty. It required the genius of original thought to form the conception that the ideal phonograph horn must not be seamless, but on the contrary, must be constructed of sections having seams or joints. This original conception occurred to no one but Nielsen, and the embodiment of such conception in practical form constitutes the acme of invention, because it was wholly at variance with the teachings of the art up to that time.

Nielsen repudiated the conception held by others for accomplishing the purpose in hand and pursued a diametrically opposite course. He did what all the others specifically stated ought not to be done. He showed himself to be a bold and original thinker in so doing and his conception was that of an inventor. This brings him within the language of the court of appeals of the seventh circuit found in the case of *Pieper v. White*, 228 Fed. 39:

“It was only by casting aside the teaching of the art and by disregarding the counsel of contemporary experts that they (the patentees) built the device of the patent.”

Another disinterested witness, Arthur Pettit, who has been connected with the art since 1897 (Record 156) testified at page 163, as follows:

“The flower horn proved decidedly superior as was shown by the fact that it very quickly replaced the old horn and drove them out of the market. The flower horn gave much better tone production than the B & G horn or the all-brass horn. With both of these horns

that had been previously used metallic vibration frequently interfered with the clearness and purity of the reproduction, particularly with certain kinds of voices and instruments. These counter-vibrations of the all-brass horn and of the B & G horn were recognized as undesirable and as difficulties that we tried to get over, but these were not done away with until the flower horn came in. The shape of the flower horn gave a rounder and fuller tone than the previous horns. The sectional construction of the flower horn broke up and did away with the objectionable counter-vibration and allowed the records to be produced with clearness and without interference. This was such an advance over the prior horns that the flower horn was at once recognized as much better, and as soon as they came on the market no one wanted any other kind of a horn.”

The quoted testimony shows conclusively the defect in the horns of the prior art. That defect was one which was known to all the experts in that art. It was plain and palpable and cried aloud for remedy. It is not surprising to note therefore that many workers in the art had tried to find the remedy.

Notable among those workers was Mr. Sheble, of the firm of Hawthorne & Sheble, who furnished to the defendant in this case the horns which are claimed to be an infringement. He noticed the defect and took out patent No. 759,639 of May 10, 1904, in which he proposed to cover the old B & G horn on the outside with a closely adhering cloth cover for the purpose of absorbing the metallic vibrations of the horn. His idea was not to change

the structure of the old horn, but to preserve that structure in its entirety and add to it something which would absorb the vibrations. That effort was an ignominious failure, and the horn was soon consigned to the limbo of abandoned experiments.

We quote from the Sheble patent as follows:

“To those accustomed to the use of machines for reproducing sound it is well known that hitherto there has always been present an objectionable metallic note produced by the machine when in operation, due in a great measure to the fact that the vibrating column of air within the horn sets in vibration the metal of the horn itself, which in turn causes vibrations of the air so as to give rise to the objectionable note or tone mentioned.”

Mr. Edison also was unremitting in his efforts in this direction. In the published book, entitled “A Complete Manual of the Edison Phonograph” by George E. Tewkesbury, with an introduction by Mr. Edison (Record 132), we find at page 152 the following statement:

“With the phonograph a speaking tube and listening tube are provided. The speaking tube for dictation purposes meets the conditions acceptably. The single tube for listening is the best device for the purpose. But for concert use and public entertainment, the sound must be thrown out so that many persons can hear it, and for this purpose numerous types of amplifying horns have been produced. It would astonish the casual reader to learn of the number and thoroughness of the experiments in that direction. Mr. Edison has himself tried a vast number of sizes and shapes, out of all

sorts of material. Other experimentalists and enthusiasts have gone over the same ground, and branched out into new paths. Yet all have come back to the main traveled road. Wood, iron, steel, zinc, copper, brass, tin, aluminum, cornet metal, german silver, have been tried. Glass, too, and hard rubber, papier-maché, and probably every other product that nature yields or man contrives. The latitude as to form and shape being greater than the resource in material, there have been almost innumerable attempts in that line. After all of which it may be said that tin and brass, defective as they are, have been settled upon as the most available, and the forms now known in the trade as the most desirable.

The 26-inch standard tin horn is deservedly the amplifying device most used, and all things considered, gives as good results as any. It is not expensive, can be used for recording and reproducing both, and fulfills all reasonable requirements of the horn service. * * * The measurement at the bell or opening of this horn is 12 inches, and the lines from the bell to the nipple are straight. Similar in results, but different in character, is the 22-inch brass horn preferred by some because it is thought to give a more ringing effect to the reproduction of band and orchestra music, and claimed by others to make all reproduction brighter. This horn has a flaring bell, and is 12-inches in width at its mouth."

The 26-inch standard tin horn referred to in the above quotation is our old acquaintance, the B & G horn, while the 22-inch brass horn referred to is the all-brass horn also heretofore referred to. It will be seen that the author considers these two horns to be the best which had been produced up

to that date, and as Mr. Edison in his introduction to the book endorses the same, it is apparent that he was of the same opinion. We shall see later on what he thought of the Nielsen horn after it was brought to his attention. What we are discussing now is the fact that up to the time of the Nielsen invention the B & G horn and the all-brass horn were the best which the experts in the art had been able to produce, but that they were far from satisfactory and had in them the defect pointed out by the witnesses, whose testimony has been quoted. And we can not refrain from noting that Mr. Edison was fully aware of this defect, but had not been able to remedy it. Opposite page 152 of the Tewkesbury book will be found a picture showing a large number of horns tried and experimented with by Mr. Edison. Many of them are shown to be wrapped around with tape or other material which was for the purpose of absorbing the metallic vibrations, but such expedient was ineffective. None of those horns survived. They were all abandoned and the Nielsen horn was adopted by Mr. Edison.

THE NIELSEN HORN STRUCTURALLY CONSIDERED.

It is now in order to consider the mechanical construction of the Nielsen horn so as to see how it differs from the prior art horns mechanically considered. After that we shall investigate the theory and mode of operation of the horn and show wherein the actual invention consists.

No. 771,441.

PATENTED OCT. 4, 1904.

P. C. NIELSEN.
HORN FOR PHONOGRAPHS OR SIMILAR MACHINES.

APPLICATION FILED APR. 14, 1904.

NO MODEL.

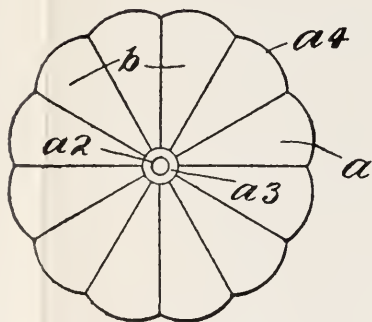
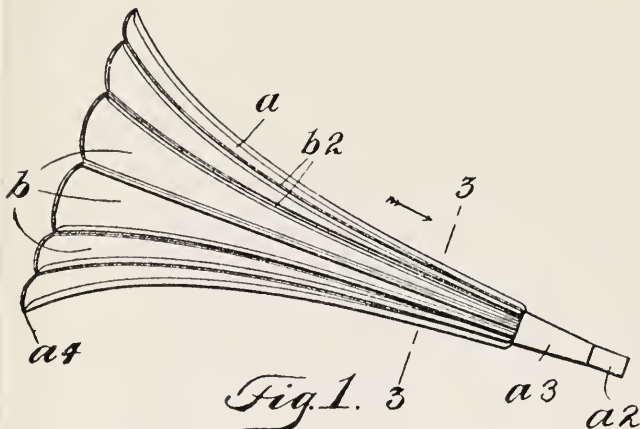


Fig. 2.

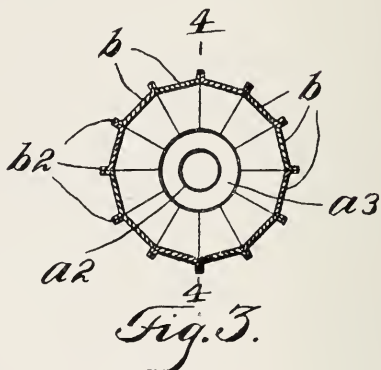


Fig. 3.

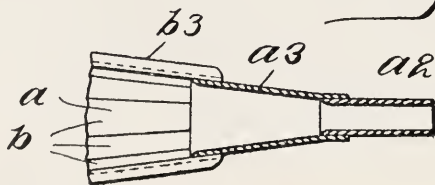


Fig. 4.

WITNESSES

W. Mattingly
J. A. Stewart

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On the adjoining page is a reproduction of the drawing of the Nielsen patent. Figure 1 is a side view of the entire horn, showing that it is of a bell shape. It resembles in shape a morning glory, from which fact it was at first sometimes designated as a morning glory horn, but the generic name by which it became known was the "flower horn".

Fig. 2 is an end view, looking into the horn, while Fig. 3 is a cross section on the line 3-3 of Fig. 1, showing the outwardly extending flanges 4, forming ribs on the outside of the horn, while the interior is comparatively smooth forming in cross section very nearly a circle.

Fig. 4 is a detail showing the nozzle piece and a supplemental piece intervening between the nozzle and the horn proper, but which may be omitted if desired.

The horn is composed of a plurality of metal sections. In the illustration shown in the drawings twelve such sections are used, but it is apparent that the specific number of sections is not material, so long as they when combined will produce the form desired. These sections are cut from sheet metal so as to be narrower at their inner end than at their outer end, and are joined together at their longitudinal edges by outwardly-directed flanges. These flanges in the illustration shown are made by upturning the edges of the sheets at a right angle, so that when brought together they form what is known in the art as a butt seam. They may be

secured together in any desired manner, preferably by solder. Such a seam was well known in the sheet metal art at the time of Nielsen's invention. When the sections are thus assembled together, they produce a horn which gradually tapers outwardly from the inner to the outer end, but the taper or flare becomes more abrupt as the outer end of the horn is reached.

In the law case against Sherman Clay & Co., the learned Judge of the lower court stated that the essential mechanical features of the Nielsen horn are the following, viz:

"1. It must be composed of a multiplicity of metal strips secured together at their longitudinal edges by a seam.

2. This seam must be of such construction as to produce longitudinal ribs on the outside surface of the horn.

3. The strips are narrower in cross section at the inner end than at the outer end.

4. The strips must curve outwardly from the inner to the outer end, but the curve is more abrupt adjacent the outer end."

These are the mechanical features of construction illustrated in the Nielsen patent as the best form in which he contemplated applying his invention, but it is apparent that he is not limited to those specific features of construction. Not only is this a principle of law, but on referring to Nielsen's specification we find the following statement:

"Changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages".

This matter was carefully considered by this court in *Sherman v. Searchlight*, 214 Fed. 86, and the views expressed by the Judge of the lower court were there approved and affirmed.

Comparing this mechanical construction with the mechanical construction of the old B & G horn of the prior art, the differences are apparent at a glance.

1. The B & G horn was relatively a long horn, thereby allowing the sound waves to remain within the enclosed space for a relatively long period of time, thereby being subjected to the continued deleterious influences of the metallic vibrations of the horn, whereas in the Nielsen horn, the body portion is relatively short with an abrupt flaring outlet, and the time during which the sound waves are retained in the interior of the enclosed space is shorter than in the case of the B & G horn and the consequence is that the sound waves are less liable to repeated interferences from metallic vibrations of the horn.

2. In the B & G horn the enclosed place through which the sound waves pass is relatively of a restricted character, which also tends to invite deleterious influences of metallic vibrations of the horn, whereas in the case of Nielsen, the interior space is relatively large and open, which tends to lessen the influence of metallic vibrations.

3. In the B & G horn the body portion of the horn is of strict conical shape, whereas in the case

of Nielsen the body portion curves or tapers gradually outwardly, that is to say, tapers in plan, but with a more abrupt taper adjacent the outer end. Stretch a string from the inner end of the B & G horn to the outer end where the bell is attached and the string will touch the surface of the horn at all points from end to end: do the same with the Nielsen horn and the string will touch the horn only at the two points, the inner and the outer end. This difference in construction also tends to counteract the deleterious influences of metallic vibrations.

4. The B & G horn is composed of two distinct parts, the body portion and a bell portion, the two being united together by a transverse seam. By such construction two different forms of metallic vibrations are set up, which augment the difficulties of the problem. And still further these two pieces are composed of different metals, ordinarily one of steel and the other of brass. This also is a disadvantageous feature on account of the different forms of vibrations of the different kinds of metal. In the Nielsen horn there is no separately attached bell, but the strips extend to the outer end of the horn where they take on an abrupt flare, and that feature of construction is a decided advantage over the B & G construction.

5. And finally the body portion of the B & G horn is made of a single piece of metal, with the inevitable consequence that its vibrations are of wide amplitude and therefore distinctly audible. If

those vibrations were not of sufficient amplitude to be audible, then the passing musical notes would not be adulterated. But the fact is that those vibrations are of such amplitude that they are necessarily audible, and being audible they are heard together with the musical sounds, and thereby the musical sounds are contaminated and adulterated with the non-musical, harsh, metallic sounds generated by the horn. This result flows from the primary fact that the B & G horn is made of a large single sheet of metal. But in Nielsen's case, the horn is made of a plurality of narrow strips of metal, from which the inevitable result flows that the vibrations of each particular strip is of small amplitude, so small in fact as to be inaudible. Being inaudible, these sounds are not heard by the listener, and as a consequence the musical sounds are emitted from the horn in all their purity and sweetness. Such in a nut shell is the mechanical difference between the B & G and the Nielsen horns, by which mechanical difference the defect of the prior art was entirely overcome.

It now remains to consider the precise nature of the Nielsen invention and the scope of his claims.

CONSTRUCTION OF THE NIELSEN PATENT.

It is stated in the specification of the Nielsen patent that the object of the invention is:

“to provide a horn for machines of this class which will do away with the mechanical, vibratory, and metallic sound usually produced in the

operation of such machines, and also produce a full, even and continuous volume of sound in which the articulation is full, clear, and distinct."

It will be observed from the above that it is not the object of the invention to do away with *vibrations*, but only to do away with mechanical, vibratory, and metallic *sounds*. This is an important fact to notice, for while it is impossible to do away with all vibrations of a horn, it is possible to do away with the disagreeable sounds consequent upon vibrations as manifested in the horns of the prior art. In other words, it is not possible to prevent vibrations, because it is an inevitable law of nature that some vibration will necessarily be produced under the circumstances; but it is possible to minimize those vibrations by so changing their form, character, and frequency as to render them inaudible in the presence of the musical sounds produced by the instrument. That is precisely what Nielsen accomplished.

The specification then explains the mechanical construction of the horn, showing that it is composed of a plurality of longitudinal metal strips gradually tapering from the inner to the outer end connected at their longitudinal edges by flanges which terminate on the outside of the horn to form ribs, while the inside of the horn presents a relatively smooth surface.

Quoting further from the specification it is there said that the horn "is bell-shaped in form, and

tapers outwardly gradually from the part a^3 to the larger or mouth end a^4 , and this curve or taper is greater or more abrupt adjacent to said larger or mouth end". This means that the sections taper in plan, which is the same thing as saying that they taper outwardly. Also this taper is gradual from the inner to the outer end, but is more abrupt adjacent the outer end. In this way the bell shape is produced.

The specification, after saying that the horn is composed of a plurality of longitudinal strips which are gradually tapered from one end to the other, as before specified, also says that these strips are to be connected longitudinally so as to form longitudinal ribs b^2 , etc. These ribs are shown in the drawings as forming a butt seam, but inasmuch as the invention does not reside in the character of the seam, any other kind of seam which would produce ribs is a mechanical equivalent.

The specification further says that the longitudinal strips are composed of sheet metal and that the inner wall of the body portion of the horn in cross section is made up of a plurality of short lines forming substantially circles. This is important, the object being to provide an interior horn surface free from projections, cavities, depressions and other obstructions which would interfere with the sound, and to produce as free and smooth a surface as possible, so that when the sound waves strike the wall they will be reflected therefrom easily and

at the same angle at which they strike the wall in accordance with the law that the angles of incidence and reflection are equal.

The specification also says that "it is the construction of the body portion of the horn as hereinbefore described that gives thereto the qualities which it is the object of this invention to produce, which objects are the result of the formation of the horn or the body portion thereof of longitudinal strips b and providing the outer surface thereof with the longitudinal ribs b^2 and curving the body portion of the horn in the manner described".

At this point we note an apparent ambiguity in the specification which the appellant placed much emphasis on in the lower court. We say an "apparent" ambiguity, but on close analysis the ambiguity disappears. Beginning at line 73, page 1 of the specification, it is stated that the ribs serve "to do away with the vibratory character of horns of this class as usually made". To a careless thinker it might appear from this that Nielsen undertook to do away with vibrations, that is to say, to eliminate all vibrations of the horn. But the language does not mean that, because the clause immediately following says that the ribs serve to do away with the metallic "sound", thereby showing clearly what the patentee meant. He did not mean to assert that his invention could do away with "vibrations", because that is scientifically impos-

sible; but he meant only that his invention would do away with the metallic "sounds" flowing from vibrations as theretofore experienced. The entire quotation in which the ambiguous clause occurs reads as follows:

"* * * and it is the longitudinal ribs b² which contribute mostly to the successful operation of the horn, said ribs serving to do away with the vibratory character of horns of this class as usually made and doing away with the metallic sound produced in the operation thereof".

When this passage is taken as a whole and construed in connection with the remainder of the specification all apparent ambiguity disappears.

Another matter to note in this connection is the fact that these ribs are not limited to the construction consisting of a butt seam. Any other form of construction which would produce a rib would be sufficient. Butt seams were old in the art of joining two pieces of metal together and Nielsen has merely selected that form as the best one. Another form old in the art at the time was the lock seam, which consists of interlocking the edges of the two plates formed into hooks and then hammering them into compactness. Nielsen might just as well have selected that form of seam, because it likewise was old in the art. His invention did not reside in the form of the seam. He found two forms in the prior art, the butt seam and the lock seam. They are both mechanical equivalents. Considering the butt

seam the best, he selected it as the best illustration. He might have selected the lock seam if he had considered that to be the best. Inasmuch as he does not limit his patent to any form of seam, it is plain that he may use either the butt seam or the lock seam. As a matter of fact he did use both forms of seam.

And to clinch the matter we have merely to refer to the fact that at the end of the specification he states that "changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages".

There is another point to be noted, and that is the expression "outwardly—directed flanges" occurring in two of the claims of the patent. As a term in the art this merely means that the flanges upon which the ribs are formed are on the outside of the horn as distinguished from the inside. The inside is stated in the specification to be comparatively smooth, the reason being to provide a surface from which the sound waves will be easily reflected. The outside of the horn, however, is ribbed or corrugated by means of these outwardly directed flanges. The flanges of the butt seam could be either inwardly directed or outwardly directed, but Nielsen says in his specification that they must be outwardly directed. The same is true of the lock seam. That seam is made of two interlocking hooks or flanges, for the hooks are merely curved flanges,

and these are located on the outside of the horn, so that in every sense of the word they are outwardly directed flanges. One well known way of making the lock seam in the prior art was to form right angle flanges on two pieces of metal, but with one flange longer than the other, and then bend the long flange over the short flange to lock them together, and finally flatten the seam down on the body of the metal. In such case it is plain that the flanges are outwardly—directed, that is to say, located on the outside of the horn instead of on the inside.

There are other ways of producing the lock seam, one of which consists in first providing curved hooks on the two edges by appropriate machinery and interlocking them together. There are also other ways. In fact the lock seam is the seam which has been used in the manufacture of sanitary cans for many years and the operation is styled double seaming. It was known long prior to the Nielsen invention as the mechanical equivalent of the butt seam. This matter will be referred to and analyzed in detail when the question of infringement is reached. At present we think it sufficient to merely quote the ruling made in the Sherman Clay case.

On the trial of that case Judge Van Fleet gave careful consideration to the mechanical construction of the horn of the patent and the scope of the claims in his charge to the jury, and he again considered the matter on motion for a new trial,

which was denied. We quote from his charge as follows:

“The invention consists of a horn for phonographs or similar instruments, and its objects are, as stated in the patent, to do away with the mechanical, vibratory and metallic sound usually produced in the operation of such machines, and to produce a full, even and continuous volume of sound in which the articulation is clear, full and distinct. The horn is constructed of metal strips secured together at their longitudinal edges by a seam, which produces ribs on the outside of the horn. In the patent this seam is shown as being a flanged or butt seam, and these flanges extend outwardly, thereby forming longitudinal ribs on the outside of the horn; the sheet metal strips are curved or flexed outwardly, but this curve is more abrupt adjacent to the outlet of the horn or the mouth or large end, thereby producing a bell-shaped horn with a flaring outlet. This is the mechanical structure described in the specification, and after specifying the method of construction the patentee has added the following clause:

“ ‘My improved horn may be used in connection with phonographs or other machines of this class and changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its object.’

“Now the invention actually covered by the patent does not reside in the particular form of the seam which joins the metal strips together. If the same result produced by the flanged seam shown in the patent as joining the metal strips together is obtainable by any other usual form of seam known at the time of Nielsen’s invention, which operates in substantially the same way to produce the same

result, then the substitution of such a seam would not be a departure from the invention, but would be within its real and true scope. The invention of Nielsen consists in the production of a horn for phonographs and similar instruments consisting of a combination of the various elements hereinabove described by me, and the essential characteristics of the Nielsen horn are the following:

“1. It must be composed of a multiplicity of metal strips secured together at their longitudinal edges by a seam.

“2. This seam must be of such construction as to produce longitudinal ribs on the outer surface of the horn.

“3. The strips are narrower in cross-sections at the inner end than at the outer end.

“4. The strips must curve outwardly from the inner to the outer end, but the curve is more abrupt adjacent the outer end.

“Now combining these elements together in this way, Nielsen produced a horn for phonographs and similar machines larger at one end than the other and having substantially a bell-shape and abruptly flaring outlet made up of longitudinally arranged metal strips secured together at their outer edges by a seam of such character as to produce longitudinal ribs on the outer surface.

“This is an explanation of the invention in colloquial language rather than in technical form, and I instruct you that it correctly represents the invention as protected by the claims in issue of the Nielsen patent.”

These views were approved by this court when the judgment was affirmed in 214 Fed. 86. So far as this court is concerned they are now the law of this patent.

SCIENTIFIC THEORY OF THE NIELSEN INVENTION.

Nielsen offers no explanation in his patent of the scientific theory on which his invention is based. We doubt if he was even aware of this theory. He was a foreigner of scant education, speaking the English language with great difficulty and occupying the position of a mechanic, earning his bread by his daily labor. He made his first horns by hand in a small room at Greenpoint on Long Island, his wife and girls helping him in the actual manual work. From the conditions existing we think it probable that he did not understand the scientific theory of his invention. All he knew was how to construct a horn mechanically which would obviate the difficulties inherent in the horns of the prior art. Why or how his horn did that he probably did not know, nor was it necessary for him to know, nor does the law impose upon him the duty of knowing.

The patent law regards results rather than the scientific process by which results are produced. It looks at things rather than the reason for things, and gives the reward to him who produces a useful result, without regard to the mental processes by which that result is reached.

This was ruled by the Supreme Court in the celebrated *Driven-well Case*, 122 U. S. 55, from which we quote as follows:

“It is to be observed that the scientific theory and principle, the application of which is supposed to constitute the invention of Colonel

Green, are not set forth either in the original or reissued patents. * * * It may be that the inventor did not know what the scientific principle was, or that, knowing it, he omitted from accident or design, to set it forth. That does not vitiate the patent. He sets forth the process or mode of operation which ends in the result, and the means for working out the process or mode of operation. The principle referred to is only the why and the wherefore. That is not required to be set forth. * * * An inventor may be ignorant of the scientific principle, or he may think he knows it and yet be uncertain, or he may be confident as to what it is, and others may think differently. All this is immaterial, if by the specification the thing to be done is so set forth that it can be reproduced."

Since that decision many others have been rendered along the same lines, but it will not be necessary to weary the court with citations thereof, inasmuch as the case quoted from is the leading authority.

But, although it is not necessary for a patentee to set forth the scientific principle of his invention, nevertheless if there be one, that fact adds materially to the patentability of the device.

Now there is a clearly defined scientific theory embodied in the Nielsen invention, which goes to show that Nielsen builded better than he knew. That theory briefly stated is simply this:

The mechanical vibrations of the metal sections of the Nielsen horn are of such small amplitude in

comparison with the vibrations of the prior horns, as to practically do away with, or at least to so minimize, as to render inaudible the harsh, squeaky, metallic sounds found in the horns of the prior art, and which this court has denominated metallic resonance or tintinnabulation.

In considering this theory we must keep in mind the distinction heretofore adverted to between a musical horn and a phonograph horn. In the musical horn the music is produced by the mechanical vibrations of the horn, and without these vibrations there would be no music. It is the primary object of those horns to produce vibrations, and, consequently, that form of horn is used which is most conducive to vibrations, to wit, a one-piece integral metal horn formed by spinning or moulding and having no seams or joints. But in the case of a phonograph horn the object is to allow music, which has already been produced and stored up on the record, to pass through and be delivered into the atmosphere without being adulterated or contaminated by outside influences. The horn is a mere tube through which the music passes, being analogous to a water pipe through which water passes. If the horn vibrates, it will set up sounds of its own, which will mingle with the passing musical sounds and contaminate them. Consequently, it is desirable to minimize the effect of those horn vibrations as much as possible, and that is accomplished by reducing the vibrations of the horn to the smallest amplitude.

In sound production it is the amplitude of the vibrations which determines the loudness of sound. Vibrations of large amplitude produce a loud sound, while vibrations of small amplitude produce a weak sound. Pluck the string of a banjo vigorously so as to produce vibrations of wide amplitude and a loud sound will follow; but pluck the same string gently so as to produce only vibration of narrow amplitude and the sound will be weak. Now in the case of the old horns which were made of one piece, the vibrations necessarily had a wide amplitude, and, consequently, a loud sound was produced. A metal plate having one square foot of superficial area produces vibrations of wider amplitude than a metal plate having only one square inch of superficial area. The difference is due to the difference in the amplitude of the vibrations. Nielsen divided up the large one-piece plate of the prior art into numerous smaller plates or sections and separated them from one another by bounding ribs; consequently, the vibrations of each of these separate plates is of much smaller amplitude than the vibrations of the large one-piece plate, and the bounding ribs prevent the vibrations from spreading from one to the other. In other words, these ribs limit the vibrations to each individual plate. The result is that the sounds produced by the vibrations of the individual plates are of such small amplitude as not to be audible. Consequently, they do not contaminate the musical sounds passing through the horn. In the case of the B & G horn

we hear both the sounds of the music and the sounds of the horn; but in Nielsen's horn we hear only the sounds of the music and cannot hear the sounds of the horn, because they are of such small amplitude as to be inaudible. Nielsen did not undertake to do away with the vibrations of the plates, because that was impossible. What he did was to change the vibrations from those of large amplitude to those of small amplitude for the purpose of decreasing the loudness of the sound. This is the scientific theory of the invention, and it is founded on the fact that loudness of sound is dependent upon the amplitude of the vibrations of the sound-producing body.

Nielsen utilized this scientific principle in a phonograph horn and thereby produced a new result. It may seem remarkable that so eminent a scientist as Mr. Edison missed it; but the undisputed fact is that he did miss it. He tried to accomplish the desired result by wrapping the old horn with tape or rattan for the purpose of absorbing the vibrations. Hawthorne and Sheble tried by covering the outside of the old horn with a silk material. Both failed. Nielsen tried by changing the structure of the old horn whereby he utilized the scientific principle above referred to. He succeeded where all others had failed. He produced the long-sought result.

After Nielsen had thus solved the problem by producing the flower horn Edison and all the other experts gave to it the tribute of their praise by con-

signing their own horns to the scrap-heap and adopting that of Nielsen.

EFFECT OF THE NIELSEN INVENTION ON THE ART.

This subject is an interesting one and is in and of itself sufficient to justify the finding that Nielsen's device was the product of the inventive faculty and was not anticipated by anything in the prior art.

As heretofore remarked, many different styles of horns had been tried prior to Nielsen with the result that at the time of his invention the best horns so far devised were the old B and G and all-brass horns. Many different forms made of many different materials had been tried and abandoned. (See Edison's book quoted from.) The B & G and the all-brass horns were the only ones which survived, and practically all phonographs at the time of Nielsen's invention utilized those horns. (See testimony of Krabbe, Merritt, Locke, and Pettit.)

Those horns had known defects, and many efforts had been made to remedy them without success. We have already called attention to the efforts of Hawthorne, Sheble, and Edison in that direction, and it may be added that many other workers in the art strove earnestly to attain the desired result.

In the Edison book quoted from it is said at page 151:

"In this chapter we do not expect to say all there is to say about horns or to say the

last word about horns, for the last word has not yet been spoken. The horn is still in its experimental stage, although certain definite results have been accomplished and certain facts are known."

And at page 152 it is said by the author:

"It would astonish the casual reader to learn of the number and thoroughness of the experiments in that direction. Mr. Edison has himself tried a vast number of sizes and shapes out of all sorts of material. Other experimentalists and enthusiasts have gone over the same ground, and branched out into new paths."

They all failed, and the problem remained unsolved until the Nielsen invention appeared. Nielsen solved the problem. As soon as his horn was made public it captured the market. The B & G and all-brass horns immediately disappeared and were consigned to the scrap heap. They were sold for old junk. The Nielsen horns took their place. All the dealers adopted the Nielsen horn; not merely one here and another there, but all of them. There cannot be found in the industrial arts another instance of such complete and instantaneous abandonment of an old device and adoption of a new one.

At page 93 of the decision of this court, in 214 Federal Reporter, it is said:

"Witnesses on behalf of plaintiff had testified that after the Nielsen flower horns were introduced to the market everybody used them on their machines; that they were bought by

everybody, by agents, by the dry goods stores, by the department stores and everybody. Everybody wanted them. Nobody wanted the old style horns."

And in the case of *Morton v. Llewellyn*, 164 Fed. 692, this court said:

"Apart from the presumption of novelty that always attends the grant of a patent, the law is that where it is shown that a patented device has gone into general use, and has superseded prior devices having the same purpose, it is sufficient evidence of invention in a doubtful case."

Permit us now to refer briefly to the evidence on this point.

The witness Krabbe, when testifying regarding the Nielsen horn, says at page 101 of the record:

"It practically did away with the B & G horn and with whatever all-brass horns still remained in use. Those concerns that have been making the B & G and brass horns started making flower horns in imitation of the Nielsen horns. I have already referred to the flower horns that I saw at Blackman's place. In short time flower horns were put out by nearly all of the manufacturers and not long afterwards the talking-machine companies themselves adopted the flower horns as part of their standard equipment and raised the price of their machines so as to include the horns. This practically put the independent horn manufacturers out of business except those that continued making the horns for the talking machine companies. Toward the latter part of 1904 and for a number of years succeeding it was practically the only metal horn used and was used in enormous quantities."

The witness Merritt, testifying at page 121, says:

“As I have already stated in the early part of 1904 Bettini & Company made an arrangement to handle the horn and we handled the horn in large quantities. Almost immediately various horn manufacturers put upon the market a number of imitations of the Nielsen horn. These competing horns had the same shape as Nielsen’s and were made up in the same manner of a number of flaring curved sections that were joined at their edges so as to form ribs. These horns were called the flower horns, following the designation given the horn by Mr. Nielsen himself. Some of the competitors called them morning-glory horns and some lily horns and others flower horns. By the latter part of 1904, or the early part of 1905, practically every horn manufacturer in the East, at any rate, was making this type of horn. They at once superseded both the brass horn and the B & G horn as well as the paper horns that had previously been put upon the market in some quantity. At the time the Nielsen horn was introduced the phonograph machine companies were not supplying any large horn with their machines. The phonograph companies were supplying only a small conical reproducing horn, varying from 14 to 18 inches. There was a very widespread demand for larger horns running up as high as 48 inches, but these horns were not supplied by the phonograph machine companies. The public had to buy and did buy these horns in large quantities from jobbers and dealers who got them from concerns who made the horns specially. There was a very large business in the sale of these larger-sized horns after the Nielsen horn was introduced. Various manufacturers who had previously been making the larger-sized brass B & G horn

above referred to took up the manufacture of flower horns. Among these concerns that put the flower horns upon the market in 1904 or early in 1905 were the Hawthorne & Sheble Mfg. Co. of Philadelphia, the Tea Tray Company of Newark, N. J., the Standard Metal Manufacturing Company of Newark, N. J., and several other concerns. The success of the flower horn was so marked, however, that within a short time the manufacturers of the phonographs themselves decided to give a larger horn with their equipment and themselves decided to adopt the flower horn. From that time on the flower horn became the regular standard equipment of the talking machines put out by the Edison, Victor, Xonophone and Columbia companies. The prices of the talking machines were raised by the manufacturers of such machines from \$2.50 to \$7.50 to cover the horn that was then supplied as part of the standard equipment. These talking machine companies sold the machines and the horns under an agreement by which the jobbers and dealers were required to maintain certain re-sale prices in disposing of the machines. Under these agreements the jobbers and dealers could not buy the talking machines without at the same time buying the flower horns as part of the standard equipment of those machines. The result was that most of the independent manufacturers of the flower horns were soon forced out of business and from that time on the flower horn business was carried on by the talking machine companies supplying the flower horns as part of the standard equipment as I have above pointed out."

The witness Locke, testifying at page 144, says:

"The B & G horn that I have spoken of was the popular and practically the only large horn

that was being sold just before the Nielsen horn came into use. The B & G horn was made by three or four companies including the Tea Tray of Newark, N. J., the Hawthorne & Sheble Mfg. Company of Philadelphia, Pa., and the Standard Metal Manufacturing Company of Newark, N. J. These three companies sold large quantities of the B & G horn. Very shortly after I got my interest in the Nielsen horn, or possibly just about that time, these three companies and a number of others started in making the flower horn and soon began to sell that horn in as large quantities as they had previously sold the B & G horn. The so-called flower horn created a furore and practically did away with the B & G horn. All new trade was in the flower horn and many people who had previously equipped their machines with the B & G horn discarded them and bought the flower horn.

Not only did the large manufacturers who had previously been making the B & G horn take up the flower horn and make and sell it in place of the B & G but a large number of smaller concerns started up making the flower horn. In fact I discovered after I had gotten into the business that some of the manufacturers had started making the flower horn in a small way in the summer of 1904 or thereabouts a few months after Nielsen had succeeded in getting his horn on the market in considerable quantities. The flower horn business increased very rapidly during 1905 and 1906 and the horn became recognized by the trade and by the public as so satisfactory that before long the talking machine companies themselves adopted the flower horn as a part of the standard equipment of their talking machines, discarding the small, cheap horn that they had previously been supplying adding to the former price of the machines an additional amount

varying from \$2.50 to \$7.50 to cover the varying sizes of the horns. The talking machine companies sold their machines under license agreements with their jobbers and dealers by which the jobbers and dealers had to purchase the entire equipment and had to maintain fixed prices in re-selling the same, and the result was that the jobbers and dealers were thereafter compelled to buy the flower horns from the talking machine companies as part of the equipment of the talking machines. This made it impossible for the independent manufacturers of the flower horns to continue making the same, except, of course, those who made contracts with the talking machine companies to supply them with the flower horns.

The flower horn continued to be practically the only form of horn used with talking machines down to the time when the cabinet machine came into use which utilizes a smaller sound producer that is concealed in the cabinet."

The witness Pettit, testified as follows at page 163:

"The flower horn proved decidedly superior as was shown by the fact that it very quickly replaced the old horn and drove them out of the market. The flower horn gave much better tone reproduction than the B & G horn or the all-brass horn. With both of these horns that had been previously used metallic vibration frequently interfered with the clearness and purity of the reproduction, particularly with certain kinds of voices and instruments. These counter-vibrations of the all-brass horn and of the B & G horn were recognized as undesirable and as difficulties that we tried to get over, but these were not done away with until the flower horn came in. The shape of the flower horn gave a rounder and fuller tone than the pre-

vious horns. The sectional construction of the flower horn broke up and did away with the objectionable counter-vibration and allowed the records to be produced with clearness and without interference. This was such an advance over the prior horns that the flower horn was at once recognized as much better and as soon as they came on the market no one wanted any other kind of a horn."

Another fact of pregnant import may be noted here. Prior to Nielsen's invention the phonograph companies had no effective horn to furnish with the phonographs as a part of their standard equipment. Consequently, the sale of phonographs and the sale of horns were two different branches of the business. In this connection it is stated in one of the Edison advertisements relating to horns as follows:

"Heretofore the sale of talking machines and the sale of horns have been two distinct transactions. This was because no talking machine had a satisfactory horn."

In other words, there was no horn at that time which the talking machine companies were willing to endorse as a satisfactory horn; consequently, when they sold the phonograph instruments they allowed the purchaser to use any horn he might select. It is true that the phonograph company usually sold with the phonographs themselves a small insignificant and inefficient tin horn of the shape of a fish horn, but the evidence shows that the dealers before selling the phonographs removed that horn and substituted in place thereof the B & G horn. But shortly after the Nielsen horn was

made public and its superior qualities became apparent, the phonograph companies concluded to and did adopt that horn as a part of their standard equipment. The Victor Talking Machine Company, the Edison Company, and the Columbia Company, the three greatest phonograph manufacturing concerns of the world, adopted the Nielsen flower horn as a part of their standard equipment.

In the case against the Sherman Clay & Company, in this court, the Victor flower horn was in issue, and in the suit against the Pacific Phonograph Company the Edison flower horn was in issue. In the present case the Columbia flower horn is in issue. They are all of substantially the same construction and mode of operation. As showing what those companies thought of the flower horn, we refer to certain exhibits in this case, consisting of advertisements from the "Talking Machine World", a trade paper devoted exclusively to the interests of the phonograph art. On December 15, 1907, January 15, 1908, February 15, 1908, and March 15, 1908, respectively appear the following advertisements of the Edison Company:

The first of these advertisements contains a cut of a Nielsen horn and uses the following language:

"MORE ATTRACTIVE THAN EVER.

The *new Horn* and Crane of the EDISON PHONOGRAPH *affords just the needed touch.*

The one thing which the Edison Phonograph needed to make it complete has been added—a large, handsome, prettily shaped horn, supported by a nickel-plated swinging crane.

Each model has now been so equipped, and in each case the proper size and shape of horn is furnished to produce the best possible results.

This new equipment means much to Edison dealers. It means that the carrying of a stock of horns is no longer necessary; that the sale of an Edison Phonograph includes the sale of a horn and a protected profit to the dealer on both.

The cutting of prices on horns has always worked a hardship to those dealers who maintain prices. This is now eliminated, as all dealers must sell the Edison Phonograph, complete with horn, at the full price.

The new complete Edisons are more attractive than ever, and the fact that each model now includes everything necessary to perfect work, with no extras to buy, is sure to appeal to possible purchasers. The slight advance in price on account of the new improvements is really not a higher price, for purchasers have always paid an extra price for a horn out of the dealer's stock. The dealer now sells a horn when he sells the phonograph, gets full price and makes a liberal profit on it.

If you do not handle Edison Phonographs, this new feature is an added reason why you should. Write for new catalogue and full particulars; also for the name of a nearby jobber who can supply you with Edison goods."

This advertisement is in evidence marked "Complainant's Exhibit Edison Advertisement of Flower Horn" (Record 130).

The second advertisement contains a cut of a Nielsen horn and uses the following language:

"WHEN YOU SELL AN EDISON PHONOGRAPH YOU
SELL A COMPLETE INSTRUMENT.

Heretofore the sale of talking machines and the sale of horns have been two distinct transac-

tions. *This was because no talking machine had a satisfactory horn.*

Now the Edison Phonograph has *its own horn* and swinging support. *The horn is large, handsomely shaped and exactly adjusted to the instrument's needs.* It sets the phonograph off, attracts interests *and best of all, it pleases purchasers every time.*

The horn business has always been a drawback to the trade. It led to price-cutting which affected profits, necessitated carrying a large stock of horns and complicated selling methods generally.

Now the customer gets *the best and most suitable horn to be had* as a part of the phonograph, pays the price for both in one transaction, and the dealer makes a good profit on both. This *new equipment* is making new records for dealers in phonograph sales. Are you getting the benefit? If not, write us for full information and the name of a nearby jobber who can supply you with whatever you need."

This advertisement is marked in evidence "Second Edison Advertisement" (Record 130).

The third advertisement contains a cut of a Nielsen horn and uses the following language:

**"THE NEW HORN OF THE EDISON PHONOGRAPH
MEETS A LONG FELT WANT.**

This new horn is big, shapely and handsome. It sets the instrument off and gives to the reproduced sounds a clearness and sweetness not possible with other horns.

The appeal it makes to the consumer is instantaneous. It looks the money and it gives the results.

The horn is sold with the phonograph as a part of it—one price for both. One set of motions and the whole transaction is completed.

The horn brings the dealer a good profit. The price is fixed, just as the price of the phonograph is fixed. No competitor can influence a sale by cutting the price on the horn, and as the Edison horn is made for the purpose of securing the best results from the phonograph, no stock of horns is necessary.

The new equipment of the Edison puts the phonograph selling proposition on the right basis. It means easier and quicker sales, full profits every time, no unfair competition and no accessory stock.

If you are not an Edison dealer, you are overlooking a big money-making opportunity.

Write to-day for full information and the name of a nearby jobber who can give your order immediate attention."

The fourth advertisement contains a cut of a Nielsen horn and uses the following language:

**"THE FASTER YOU TURN OVER YOUR CAPITAL
THE MORE MONEY YOU MAKE.**

There is nothing so useful in business as ready money. A stock of musical instruments represents capital, but so long as it is stock it isn't paying running expenses or declaring dividends. Money invested in a stock of

EDISON PHONOGRAPHS

comes back over your counter in a steady stream, bringing profits of good proportions. The turnover is so quick that a small amount of capital will take care of this end of your business. *The new horn* and crane of the improved Edisons makes it unnecessary for you to carry horns in stock, and the great and growing demand for this wonderful entertainer makes it almost imperative that you add Edison Phonographs to your lines. You can get full information and whatever instruments you wish from a nearby jobber whose name we will be pleased

to furnish you on request. Write us to-day about it."

The fifth advertisement contains a cut of a Nielsen horn and uses the following language:

"Did you ever figure up your profits on talking machine horns and find there were none? Most dealers have, and that has been the trouble. A stock of horns that ties up money; a reduction in price to influence a talking machine sale; a cut to meet the price of some other dealer, and where is the profit?

It is because this situation exists in nine out of ten talking machine stores that the

NEW EDISON PHONOGRAPH

with its big, appropriate, properly proportioned horn, has received such a welcome from the trade. The horn goes with the phonograph. The price includes both. There is a good profit in each. The new horn puts the phonograph at its best, satisfies every purchaser, makes a stock of horns unnecessary and makes price-cutting impossible. Are you selling the new Edison? Are you pushing it? If not the most profitable part of the talking machine business is going to your competitors. Write us or a nearby jobber for catalogue of new models, terms, etc."

It will thus be seen that soon after Nielsen's invention was made known to the public, Mr. Edison adopted it and called it a perfect horn. He discontinued the use of the prior horns because they were defective and did not produce good results. He adopted the Nielsen horn because it cured those defects and produced a perfect result. Not only did he adopt the Nielsen horn, but he pronounced it a

perfect horn. He says that no prior horn was satisfactory, that this "new horn" makes his phonograph "complete", also that it secures "the best results from the phonograph", that it reproduces sounds with "a clearness and sweetness not possible with other horns", that "it affords just the needed touch", and "meets a long felt want".

Here, then, we find a piece of evidence as to the validity of the Nielsen patent which could not possibly be made stronger. Mr. Edison was the inventor of the phonograph and the founder of the phonographic art. He is the wizard to whom we all defer in electrical matters. The evidence shows that he, after experimenting with over 200 different forms of horns, could get nothing better than the old B & G horn, in which was the defect which Nielsen cured, and that when the Nielsen horn was brought out, he recognized its excellence at once and adopted and used it, having discarded his own horns. This surely is the highest tribute of praise that could be given to the Nielsen invention.

The record also shows advertisements in the "Talking Machine World" from other phonograph manufacturers of similar import as those of Mr. Edison.

On page 14 of the issue of May 15, 1908, is an advertisement of the Federal Manufacturing Company of Cleveland showing a cut of a flower horn, to which the name "Ideal" was applied. It was in construction and operation a Nielsen horn. The advertisement reads:

“A REVOLUTION IN THE PHONOGRAPH HORN.

Since the advent of the phonograph, back in the eighties, it may safely be affirmed that no real progress has been made in the phonograph horn; its size has been gradually increased, thus merely accentuating the defects of the reproduction. At last, the Ideal horn has come. A scientific device aiming at a pure melodious reproduction of the sound, be it either a great soprano song, the endearment of a string instrument solo, or the rendering of a Sousa march. Besides, it eliminates all the bad points of the previous horns.”

This advertisement is in evidence marked “Complainant’s Exhibit Federal Advertisement of Flower Horn”.

On page 18 of the issue of January 15, 1905, is an advertisement by Hawthorne & Sheble, entitled “A Great Supply House”, containing a cut of the flower horn and praising it up to the skies, saying, *inter alia*:

“Their latest product in the horn line, named the Flower Horn, is shown herewith. These Flower Horns are made by them in many styles, and not only do they present a handsome and attractive appearance, but they are brilliant and clear in reproduction.”

It is marked “Complainant’s Exhibit Hawthorne & Sheble Descriptive Article of January 15, 1905”, and is Plaintiff’s Exhibit No. 18.

Hawthorne & Sheble are the manufacturers who furnished to the defendant herein the infringing horns.

Other advertisements of the flower horn by Hawthorne & Sheble appear from time to time in the "Talking Machine World"; also similar advertisements by other manufacturers, and notably by the Victor Talking Machine Company. They all give unstinted praise to the flower horn, loudly proclaiming it to be the acme of improvement in phonograph horns. Those "Talking Machine Worlds" were all bunched together and submitted as a single exhibit, with the understanding that either party could refer to anything therein contained. They are now before this court in the custody of the clerk.

It may be noted as a matter of interest in this connection that the phonograph companies, after adopting the Nielsen horn, immediately raised the selling prices of their phonographs \$2.50 and \$7.50 each, according to size (Record 123, 145). It will be seen, therefore, that the Nielsen invention not only enabled the phonograph companies to secure a perfect horn, but also to get higher prices for their goods. We think it safe to say that the three great phonograph companies—Edison, Victor, and Columbia—have sold in the aggregate three million phonographs containing Nielsen horns. Assuming that the average raise in price was \$5.00 (the mean between \$2.50 and \$7.50), it follows that by reason of the Nielsen invention those three companies have realized from their business fifteen million dollars more than they would have realized without the invention. These remarks are not idle speculations, but safe and sane deductions from the

sworn testimony of witnesses appearing in the record. We make the assertion without fear of successful contradiction that the Nielsen invention was revolutionary both in mode of operation and in commercial results. Surely it is entitled to the protection afforded by the patent law.

SUBSEQUENT PATENTS.

In considering a revolutionary invention, it is sometimes instructive to examine the patents which are issued subsequent as well as those issued prior thereto. The prior patents may show poverty in the art, while the subsequent patents may show activity caused by the invention in question. In such circumstances the subsequent patents become a proper subject for consideration.

In the case at bar there is practically nothing in the art prior to Nielsen affecting the scope or validity of his patent; but as soon as his patent was issued, we find the art flooded with patents utilizing the Nielsen idea and all infringing upon the same. We have put in evidence for the purpose of showing this fact the following patents, viz.:

Eichhorn, No. 797,725 of 1905;

Senne, No. 811,877 of 1906;

Fernan, No. 829,066 of 1906;

Eichhorn, No. 38,202 of 1906;

Beecroft, No. 38,273 of 1906;

Beecroft, No. 38,274 of 1906;

Steiner, No. 38,602 of 1907;

Cunnius, No. 921,676 of 1909;

Berner, No. 926,235 of 1909;
Benjamin, No. 917,404 of 1909; and
Danis, No. 967,618 of 1910.

Should the court feel inclined to examine these patents, it will be found that they are all imitations of the Nielsen horn. In the *Senne* patent re-referred to, No. 811,877, of 1906, it is stated that his horn has

“a series of plates or sections each having their edges formed with flanges over which is secured a locking rib, by means of which the sections are securely held together”.

Further along in the specification, referring to the metal strips, he says:

“each being wider at its outer end and tapering upon a curved line to its inner end, so that when all of the blades are assembled they will produce a horn having a flaring mouth or, in other words, bell-shaped.”

In the patent to *Eichhorn*, No. 797,725, of 1905, we find the identical Victor flower horn involved in the Sherman Clay case and there held to be an infringement. In his specification Eichhorn says:

“In said drawings 5-5 indicate the sections of the horn, which individually are flaring in plan and at their large ends are made concave, as at 6. The longitudinal edges 7 of said sections are also concave, so that when said sections are joined together the horn will be given the desired flaring and regularly scalloped shape at the edge of the large end, resembling a flower.”

Not content with securing this mechanical patent for a trifling addition to Nielsen's flower horn, Eich-

horn also procured design patent, No. 38,202, of August 28, 1906, claiming for himself the form and design of the horn.

Beecroft made a slight change of such minuteness that it would require an intellect of the microscopical kind to detect it. He, however, succeeded in obtaining two design patents for his attenuated idea, Nos. 38,273 and 38,274 of 1906. A casual glance at these four patents of Eichhorn and Beecroft tends to persuade a person that the Patent Office will grant a patent for "the merest shade of a shadow of an idea".

Berner, No. 926,235 of 1909, shows the Nielsen idea put in the form of a collapsible horn.

Danis, No. 967,618 of 1910, shows a cloth covering over a Nielsen horn for the purpose of "dampening the vibrations".

Cunnius, No. 912,676 of 1909, shows the Nielsen idea with some modifications. .

This state of facts is most impressive. Prior to Nielsen we find in the art no patent utilizing his principle, though we do find many patents utilizing other principles; but after the Nielsen patent was issued the art is immediately flooded with subsequent patents utilizing his principle and trying to improve on the mechanical construction. Such has been the history of every great revolutionary invention.

QUESTION OF INFRINGEMENT.

On this question we do not think there is any room for doubt. The horns sold by the appellant are flower horns of the same construction and mode of operation as the horns sold by Sherman Clay & Co. and heretofore held by this court to be infringements.

Opposite this page will be found an insert showing four horns. On the top line are representations of the two horns involved in the Sherman & Clay case (214 Fed. 86). The first one is the small horn and the second one is the large horn sold by those parties. Both are of the same construction and mode of operation differing only in size. They were supplied to Sherman Clay & Co. by the Victor Talking Machine Co. and are referred to as the Victor flower horns.

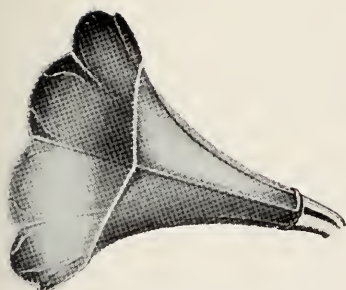
The horns on the lower line of the insert are those of the appellant, which the lower court found to be an infringement of the Nielsen patent. The first one is the small horn and the second one is the large horn sold by that company. They both are of the said construction and mode of operation and differ only in size. If the Victor horns are an infringement, then it follows conclusively that the Columbia horns are likewise an infringement, and possibly no other argument on the point will be necessary.

However, we shall venture to repeat what we said in our brief in the Sherman Clay case on this sub-

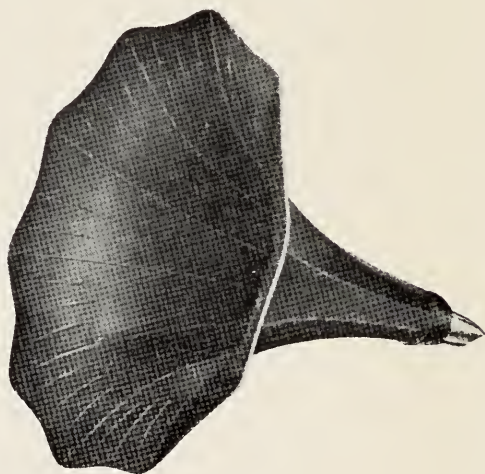
VICTOR HORNS

Involved in *Sherman v. Searchlight*, 214 Fed. 86, and held
to be infringements of Nielsen patent.

SMALL HORN



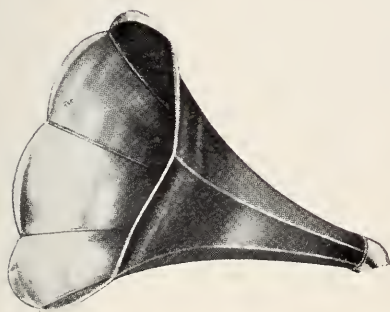
LARGE HORN



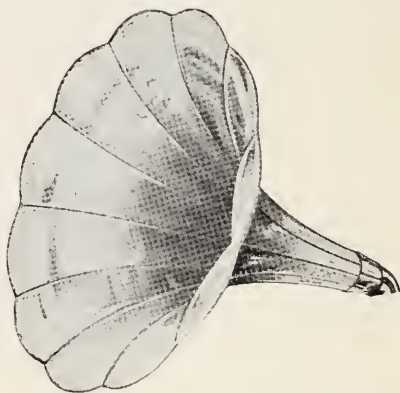
COLUMBIA HORNS

Charged in the case at bar to be infringements of the Nielsen patent.

SMALL HORN



LARGE HORN



ject of infringement. It is to be observed that in these infringing horns the lock seam is used instead of the butt seam, and it is contended by our opponent that the Nielsen patent is limited to a construction in which the butt seam is used and does not cover a horn in which the lock seam is used. This argument is sought to be founded on the phrase employed in Nielsen's patent "outwardly-directed flanges". Their argument is that a butt seam provides outwardly-directed flanges, but that the lock seam does not. The argument is unsound.

It is true that Nielsen illustrates only one form of seam in his patent, and that is the butt seam, made by upturning the edges of two adjoining sheets at right angles to form flanges and then attaching the flanges together by solder or any other appropriate device. In so doing he followed the law strictly, which prescribes that a patentee shall illustrate in his patent only one form of his invention and the illustrated form must be that which he considers to be the best. After he has done that, then his claim will cover not only the illustrated form but any and all other forms in which the invention may be embodied. This has been elementary law ever since the decision of *Winans v. Denmead*, 15 How. 330. The law does not permit a patentee to illustrate all the forms in which his invention may be embodied, but directs him to illustrate only one form. The lock seam is the equivalent of the butt seam, and it is as much covered by the claims as is the butt seam. This position is ren-

dered unassailable by the following clause in Nielsen's patent, viz:

“Changes in and modification of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.”

That Nielsen viewed the matter in this light is shown by the fact that he utilized in practice both forms of seam. He commenced with the butt seam and made horns embodying the same, but finding that it was cheaper to utilize the lock seam, he changed over to that form (Record 95). Horns made by him embodying both forms of seam are in evidence in this case.

This view of the case was taken by Judge Van Fleet in the trial of the Sherman Clay case, where he instructed the jury as follows:

“Now while it is true that the drawings of the Nielsen patent show only flanged or butt seams and not the lock seam specifically, and while it is true that the specification described only the flanged seam, nevertheless it is urged by the plaintiff that the lock seam is the equivalent of the flanged or butt seam, and was known as such mechanical equivalent in the tinsmith art long prior to the time when Nielsen made his invention. Now if you are satisfied from the evidence that the lock seam is the mechanical equivalent of the flange or butt seam as a seam and strengthening rib, then the fact that the defendant has substituted and used the lock seam will not be sufficient to disprove infringement of the Nielsen patent; and in this connection I charge you that in patent law two things are mechanical equivalents when they

both accomplish substantially the same results in substantially the same manner, although they may differ somewhat in form and details of construction. The law does not require a patentee to put into his patent all the different forms in which his invention may be embodied. He is required to illustrate in his patent only one form, which must be the best form in which he has contemplated embodying his invention, and after he has done that, then the patent covers other forms which are the mechanical equivalent of the one shown in the patent. And furthermore, in this connection, you have a right to consider the clause in the Nielsen patent, that is:

‘Changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.’

If, therefore, you find that at the date of Nielsen’s invention the lock seam was a mechanical equivalent of the flanged or butt seam in the sheet metal art, and that they both accomplish the same result in substantially the same manner as a seam and rib when used in phonograph horns, then you must find that the two things are mechanical equivalents and that the defendant is not relieved from the charge of infringement merely because its horns use the lock seam instead of the flanged or butt seam. In other respects than in the form of the seam and the presence of a rib it is not contended that the defendant’s horn differs materially from that covered by the plaintiff’s patent.”

The jury thereupon found in favor of the plaintiff and the judgment was affirmed by this court, which settles the law on this point (214 Fed. 86).

The contention that the flanged or butt seam and the lock seam are mechanical equivalents can not be denied. They were both old in the art at the time of Nielsen's invention. The flanged or butt seam was shown in the prior patents of *Barnard*, No. 165,912 of 1895; *Bayles*, No. 406,332 of 1889; *Lanz*, No. 561,368 of 1900; *Marten*, No. 738,342 of 1903; *Bock*, No. 722,398 of 1903, and *Penfield*, No. 362,107 of 1887.

The lock seam was likewise old in the art and is shown in the prior patents of *McVeety & Ford*, No. 34,907 of 1901; *Hart*, No. 409,196 of 1889; *Gersdorff*, No. 453,798 of 1891; *McVeety & Ford*, No. 699,928 of 1902, and in numerous patents relating to the manufacture of sanitary cans.

Thus we see that both forms of seam were old in the art. They both produce the same result in substantially the same manner and that they are mechanical equivalents is not open to question. But if any confirmation of this is needed, we refer to the testimony of Baldwin Vale. At page 827 of the record he testified regarding the two seams and their equivalency as follows:

"I would say that they were mechanically equivalent, as they are alternatives, and a mechanic would choose the form of seam in accordance with the desired result. They are both old in the trade and have been available for the purpose probably for many years prior to Nielsen."

At pages 825-6-7 of the record this witness goes over the whole matter in detail, describing the

BUTT SEAM — ORDINARY FORM

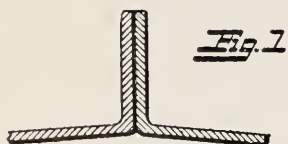


Fig. 1



Fig. 2

BUTT SEAM — MODIFICATION

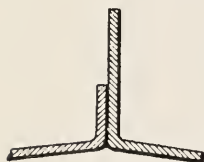


Fig. 3



Fig. 4



Fig. 5

LOCK SEAM

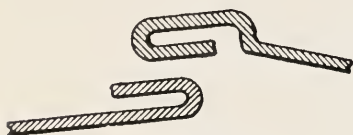


Fig. 6



Fig. 7

method of forming these seams, their purpose and object, and their equivalency. Appellant's witness Hunter admits that both forms were known in the art "for the last forty years" (Record 274). Hence we may safely conclude, as was held by the court in the Sherman Clay case, that these two seams are in the strictest sense of the term mechanical equivalents. This being true, the patent is not limited to the butt seam, but includes and covers its equivalent, the lock seam, or any other seam which operates in the same way and produces the same result. In fine Nielsen's invention does not reside in the form of seam used, but in the combination of certain specified things wherein a seam of some kind was one of the elements.

But after all an analysis of the matter will show that the infringing horn does literally and strictly employ a seam having "outwardly-directed flanges". This we can show by the illustrations appearing on the insert opposite this page. Figure 1 shows the precise construction disclosed in the Nielsen patent drawing, being a cross-sectional view of two adjoining strips of metal having up-turned right angle flanges abutting against each other. In figure 2 this same right angle flange of figure 1 is represented as having been bent down flat on the outside surface of the horn. Such bending has not changed the construction in any material respect, and the flanges when bent down as shown in figure 2 are just as truly "outwardly-directed flanges" as the form shown in figure 1. The

flanges are still there, and they are still outwardly directed with reference to the horn. They still connect the two strips together and they still provide longitudinally arranged ribs on the outside of the horn. So far all is plain sailing.

We now invite the court's attention to the second line of diagrams marked figures 3, 4 and 5. These represent a slight modification of figures 1 and 2. Figure 3 is the form of construction shown in the Nielsen drawings with the exception that one of the flanges is longer than the other. Surely that change would not take the structure outside of the patent. In figure 4 we have folded the upper end of the long flange down over the short flange. Neither has this change taken the structure outside of the patent. In figure 5 we have bent the flanges of figure 4 down flat on the body of the horn. Neither has this bending down operation changed the essential characteristics of the joint. Figure 5 shows longitudinal flanges, outwardly-directed joining the strips together, and producing longitudinally arranged ribs on the outside of the horn, and it would be idle to assert that such form is not within the Nielsen patent. In passing it may be noted that the forms shown and illustrated in figures 3 and 4 were old in the art, being shown in the prior patents of *Hart*, No. 409,196 of 1889, figures 6, 7 and 8 thereof, and *Marten*, No. 738,342 of 1903, figure 5 thereof.

Now we advance a step further and invite the court's attention to the two figures constituting the

third line of illustrations. Figure 6 is a cross sectional view of two adjoining strips of metal with hooks formed thereon before they are interlocked for the purpose of forming a lock seam. In order to form the seam the opposing hooks are simply interlocked and hammered down. The result of this operation is figure 7, a lock seam *eo nomine*. But this figure 7 is identical with figure 5, which figure 5 was produced by merely bending down a specific form of butt seam. Figure 7 therefore shows longitudinal flanges outwardly-directed, connecting two strips together, and providing longitudinally arranged ribs on the outside of the horn. It is in the strictest and most literal sense of the term within the language "outwardly-directed flanges". It is needless to remark that this figure 7 represents the form of lock seam shown in the infringing horns. Our conclusion, therefore, is that the lock seam shown in the infringing structure is not only within the true intent and meaning of the term "outwardly-directed flanges", but that it is also within the strict letter of that term.

It is idle to assert that such seam is not composed of flanges. While those flanges are not flat, but are curved, nevertheless they are flanges all the same. It is equally idle to assert that these flanges are not on the outside of the horn, because that is a palpable physical fact. If then, there be flanges, and they be on the outside of the horn, then they are outwardly-directed flanges, because that is all that is

meant by the term "outwardly-directed". In construing the term, the witness Baldwin Vale, says:

"The expression means that these flanges extend outwardly with reference to the interior of the horn and are on the outside or exterior of the finished horn."

That is undoubtedly the correct view to take, and places the matter beyond the realm of doubt. The appellant's horn has outwardly-directed flanges, and that ends the controversy. Indeed the fact of infringement is so palpable that we do not believe that the appellant seriously questions it.

Reply to Appellant's Brief.

EFFECT OF PRIOR DECISIONS.

Since the foregoing went to print we have received a copy of appellant's brief. The time at our disposal for its consideration is so short that our reply will not be as full as we could wish. But as one must cut his coat according to the cloth, so we must frame our reply brief according to the time at our disposal.

At the beginning of his brief (pages 3 et seq.) counsel gives the status of his case and points out that his client was not a party or privy to the prior litigation, from which he argues that the prior decisions of this court are of no binding effect and that the whole subject-matter of the Nielsen patent is still at large and must be considered by the court *ab initio*, just as though there had been no prior decisions of any kind.

We do not contend that this appellant is bound by the prior decisions as *res adjudicata*. We admit that he may advance anew the old and exploded defenses of the prior litigation. No litigant can be prevented from advancing a defense, however futile it may be, and even though it may have been decided dozens of times in other litigation to which he was not a party or privy. But at the same time if such defenses have already been advanced in litigation against others involving the same subject-matter and there adjudged to be ineffectual, the

court has a right to consider its prior decisions and mete out to the last litigant the same standard of justice which it meted out to the first one. This is based on the ground that there should be some stability to the decisions of a court and not constant reversals, to the end that all litigants, whatever may be their race, color or creed, shall be subject to the same rules of law.

These views are particularly applicable to the case in hand for the reason that a stipulation between these parties regarding the taking of testimony (Record 31) refers to the prior litigation in this court then pending, and then proceeds as follows:

“Whereas the decisions in the cases may have some influence in the matter of taking testimony herein, and the parties have mutually agreed to extend the time allowed by law for taking depositions under the Revised Statutes until after the decisions of said appeals,

Now therefore, it is stipulated, by and between the parties hereto as follows, etc., etc.”

It is apparent from the foregoing stipulation that appellant's attorneys were of the opinion that the decisions of this court in the other cases would materially affect the case at bar, and accordingly they begged extensions of time in which to take depositions in their case. And yet after those decisions were rendered they paid no regard thereto, but conducted their defense just as though there had been no such decisions, and now boldly proclaim that those decisions have no effect as to them and

should be wholly disregarded. It would seem that they used the fact of the pendency of the other cases as a mere pretense for securing delay, with the intent to take advantage of those decisions if they were adverse to us and to wholly disregard them if they were favorable. Our position on the point is that in the interest of uniformity of decisions against different litigants in respect of the same subject-matter this court should hesitate a long time before overruling itself and according to the latest infringer rulings which had theretofore been refused to other infringers. Law should not be one thing for one man and a different thing for another.

It is also urged by appellant's attorneys as another reason why the former decisions should be disregarded, that the Sherman & Clay case was on writ of error in a law action, and the Pacific Phonograph case on motion for preliminary injunction, and that on a writ of error only questions of law can be considered and on appeal from a preliminary injunction only matters of discretion. From this it is urged that the decisions in those cases are of no effect whatever in the present case, which is an appeal from a final hearing in equity where both the law and the facts are reviewable.

In answer to this it is to be noted that in the Sherman & Clay case the court passed upon the validity of Nielsen's patent. The opening sentence of the opinion reads:

“The first question to be determined is the scope of the invention involved in this case.”

Furthermore, the lower court was requested to instruct the jury to return a verdict for defendant on the ground that upon the evidence adduced the patent was void for want of invention, and that there was no infringement. This required the lower court to weigh all the evidence bearing on the questions of validity and infringement and to rule upon its sufficiency. That is what the lower court did, and that is what this court reviewed on the writ of error, following the practice in *Singer v. Cramer*, 192, U. S. 265, and *Prepayment Sales Co. v. Orange County Traction Co.*, 221 Fed. 939. This necessitated a consideration and weighing of all the evidence by this court, and after so considering and weighing it this court says at page 94 of its decision:

“We conclude, therefore, on this branch of the case, that the motion of the defendant made at the close of the testimony, that the jury be directed to find a verdict in its favor upon the ground that the claims of the patent were void for want of patentable invention was properly denied.”

Therefore, when appellant's counsel say at page 3 of their brief:

“In fact, this court has never felt called upon before this time to pass, directly and judicially, upon the validity of the Nielsen patent; and this court has not yet considered the patentable novelty or lack of patentable novelty of the Nielsen disclosures”,

they make statements which are not in accordance with the facts. No one can read the decision of this court in the Sherman & Clay case without coming to the conclusion that the court did pass directly and judicially upon the validity of the Nielsen patent.

And in respect of the decision in the Pacific Phonograph case, while it is true that it was on appeal from a motion granting an injunction, and that such motions rest largely in the discretion of the court, nevertheless it is to be remembered that even upon appeals of that character the power of the court to adjudge the patent invalid and to order the bill dismissed is plenary. Indeed, the contention in the brief of the Pacific Phonograph Co.'s case was that the patent was void and that the bill should be dismissed. They were not content with asking that the order granting the preliminary injunction be reversed, but coupled therewith a specific prayer that the patent be declared void and the bill be ordered dismissed. Now inasmuch as this court rendered its decision in the Sherman & Clay case at the same time and in and by said decision held that the patent was not void, but was good and valid, we think that that decision should be taken in connection with the decision of the Pacific Phonograph Co.'s case, and when so taken it imports into the latter decision, at least inferentially, an adjudication of validity. But as already remarked, we do not claim for these prior decisions the effect of *res adjudicata*. What we do

claim is that they are entitled to be considered on this appeal and that due weight must be given to them as precedents, and if it appears that the facts of the present case are not substantially different from the facts in the other cases, then those decisions should be given controlling effect.

NO NEW DEFENSES ADVANCED.

We now take up appellant's brief in detail, from which (p. 3) it appears that the following defenses are made, viz.:

(1) *Lack of patentable novelty and invention, in view of the prior art.*

(2) *Non-infringement in view of the limited scope of the Nielsen patent (if valid).*

(3) *Laches.*

There is nothing new in any of the above defenses. They were all urged and adjudicated in the prior litigation. The answer here is practically copied from that in the Pacific case. In the Sherman & Clay case these defenses were urged by Horace Pettit, Esq., an eminent patent attorney of Philadelphia, and in the Pacific Phonograph case by Louis Hicks, Esq., an eminent patent attorney of New York. A reference to their briefs on file in those cases will substantiate our assertion. Thereafter, Mr. Bull of New York, another eminent patent lawyer, came to San Francisco for the purpose of arguing the same defenses in the Pacific

Phonograph Co.'s case on final hearing, but he prudently declined the issue and returned to New York without making an argument. Thereupon Mr. Davis of Chicago, another eminent patent lawyer, took the place vacated by Mr. Bull in that case and argued the same defenses in the lower court without success. An appeal was taken from the decree in that case but has been abandoned, which we consider to be a clear intimation from the appellant therein that the decree would have been affirmed if it had gone to argument. In the Sherman & Clay equity case also an appeal had been taken and abandoned without argument.

Now, at the eleventh hour, another Richmond appears in the field, Mr. Massie of New York, an eminent patent lawyer, and he urges the same old defenses which had been adjudicated in some of the cases and abandoned in the others. He says in his brief that this case presents new defenses; but in that assertion he is not correct. There is no new defense advanced by him, and a comparison of his brief with the briefs of Messrs. Pettit and Hicks and of the pleadings in the other cases will settle this point.

We now take up the defenses *seriatim*.

ALLEGED INVALIDITY OF THE NIELSEN PATENT.

Appellant's argument is so disjointed and devoid of logical sequence that we have experienced no little difficulty in reducing it to compact form. Re-

arranging it in logical order, it appears to be based on the following contentions: (1) *That the patent is anticipated in toto by prior patents and publications;* (2) *That if not anticipated, then it is void for want of invention because (a) it is merely a change from a unitary structure to sectional structure, (b) because it is merely the product of mechanical skill, and (c) it is a mere double use.*

Before undertaking to apply the prior art the learned counsel first undertakes to ascertain what is the Nielsen invention. Right there he makes his fundamental error. He apparently does not understand what the Nielsen invention is, or, if he does understand, he does not correctly set it forth. With a false and insufficient conception of the invention firmly lodged in his mind, it is not surprising that his subsequent conclusions were erroneous. Whoever starts out with a false premise must necessarily reach a false conclusion.

APPELLANT'S MISCONCEPTION OF THE INVENTION.

At pages 33-35, he argues that the Nielsen horn has only two limitations, viz.: "(1) it must have longitudinal strips or gore-sections, and (2) at their lines of juncture must be external longitudinal ribs or seams". And at pages 33-34 he says "The entire invention consists of only these two features, viz.: (1) The longitudinal gore-sections, (2) The external ribs or seams along the junctures of the sections".

And at page 35 he says: "In short, Nielsen has merely a *sectional* horn, suitably braced and stiffened to keep it from being too flimsy and tin-panny".

The above views are wholly erroneous. They leave out of consideration the facts that the Nielsen horn is made of metal, that the sections taper outwardly gradually from the inner to the outer end but with a more abrupt taper at the outer end, that the horn is of bell shape, and that when all of these elements are joined together a horn is produced which was new in the art. Certainly on this point the prior decisions must be controlling. We find that in the Sherman & Clay case, Judge Van Fleet instructed the jury as follows:

"The essential characteristics of the Nielsen horn are the following:

1. It must be composed of a multiplicity of metal strips secured together at their longitudinal edges by a seam.

2. The seam must be of such construction as to produce longitudinal ribs on the outer surface of the horn.

3. The strips are narrower in cross section at the inner end than at the outer end.

4. The strips must curve outwardly from the inner to the outer end, but the curve is more abrupt adjacent the outer end.

Now, combining these elements together in this way Nielsen produced a horn for phonographs and similar machines larger at one end than the other and having substantially a bell shape and abruptly flaring outlet, made up of longitudinally arranged metal strips secured together at their outer edges by a seam of such

character as to produce longitudinal ribs on the outer surface."

This instruction was held by this court to be correct. In describing the Nielsen horn this court said at page 93 of its decision:

"The patent of Nielsen described a horn composed of a plurality of strips of metal, joined together along their longitudinal edges by means of outwardly directed flanges. In the horns in use at the date of Nielsen's patent the angle assumed by the tapering sides remained the same throughout the entire length of the horn. In the Nielsen horn the strips of metal, as has already been explained, were so shaped that when joined together the form assumed by the horn was that of a bell, or, as designated by the inventor, a flower."

There can be no mistaking the meaning of this language. The Nielsen horn is not only composed of metal strips joined together at their longitudinal edges by a seam of such construction as to provide longitudinal ribs on the outside of the horn, but those strips must curve outwardly from the inner to the outer end so as to produce a bell shape. Nielsen was the first in the art to produce an outwardly-flaring, bell-shaped, sectional, metal horn with ribs on the outside joining the sections together, and yet the learned counsel gravely informs us that the sole and only characteristics of the Nielsen horn - are *longitudinal strips* and *external longitudinal ribs*. Such a definition would be met by a paper cylinder composed of longitudinal sections having upturned edges constituting external ribs. The

reason why counsel gives this restricted definition to the Nielsen invention is to make it fit certain structures of the prior art made of paper, wood, celluloid, glass and other materials. The fallacy of counsel is apparent. He starts out with a fundamental error. His premises are wrong, and necessarily his conclusion is of the same character.

Not only does counsel start out with a fundamental error of fact but also with a fundamental error of law. He attempts to anticipate the Nielsen combination by pointing out that each of the elements of the combination was old. These elements he says are the *material* of which the horn is made, the *shape* of the horn, the *mechanical construction* of the sections of the horn, and the *function* of the horn. He says that while Nielsen's horn was made of metal, it was old in the art to make phonograph horns of metal; that while Nielsen's horn is bell-shaped, it was old in the art to use bell-shaped horns; that while Nielsen's construction of the sections was such as to produce stiffening external ribs, they had previously been employed in phonograph horns and other devices; that the function of the Nielsen horn was to act as an "inert conduit" for the passage of sound waves therethrough, and that such was the function of all prior horns. He then argues that inasmuch as all of these elements were found scattered throughout the art, some in one and some in another device, therefore, Nielsen was anticipated. In other words, he endeavors to anticipate a combination by show-

ing the prior existence of each of the elements separately. Of course it is not necessary to cite authorities against this palpable error.

Another fundamental error made by counsel regarding anticipation is the assertion that in considering a prior patent the court may "read into it" something which is not there. Applying this theory, the counsel says that in the prior patents which specified horns made of wood or paper, the court must read into them that the horns there disclosed may also be made of metal. In other words, where a prior patent specifically says that the horn is made of wood or paper, there may be read into it the additional statement that it may be made of metal, thus establishing the proposition that the disclosure of a paper horn is the disclosure of a metal horn. In this way counsel claims that the prior patents showing paper, wooden, glass and cardboard horns are anticipations of Nielsen's patent for a metal horn. There could not possibly be a more vicious error committed, and we marvel greatly that a counsel of such wide experience in patent matters as we take the counsel for appellant to be, could be guilty of such a monstrous error.

It is fundamental that a prior patent or publication is effective as an anticipation only for what it shows, and that it is not allowable to read anything into it which is not there. The disclosure must be full and complete in and by itself. It must be taken at its face value and can not be helped out by extrinsic evidence.

From Judge Cox's opinion in *Badische Anilin & Soda Fabrik v. Kalle*, 94 Fed. 163, we read:

"Unless the prior publication describes the invention in such full, clear, and intelligible terms as to enable persons skilled in the art to comprehend it, and reproduce the process or article claimed, without assistance from the patent, such publication is insufficient as an anticipation."

And at page 168 of said report, we find the following:

"If prior patents and publications can be reconstructed by extrinsic evidence to fit the exigencies of the case, the inquiry will no longer be confined to what the publication communicates to the public, but it will be transferred to an endeavor to ascertain what its author intended to communicate. The question is, what does the prior publication say? Not what it might have said or what it should have said. The court has simply to consider what the publication in question has contributed to the art. If it fails to show the invention which it is said to anticipate, the contention that its author knew enough to write an anticipation and intended to do so is grotesquely irrelevant. Were such a rule established the law upon this subject would be thrown into inextricable confusion."

In that case on appeal, 104 Fed. 802, the syllabus says:

"A prior publication, referred to as an anticipation, must be given effect in accordance with what it actually communicates to the public, and expert testimony cannot be received for the purpose of showing that statements therein made were erroneous, and to give

it the effect it would have if reconstructed so as to disclose matters which it might or should have stated, but which it in fact did not."

From *Loew Filter Co. v. German-American Filter Co.*, 164 Fed. 860, we read:

"The Zimmer publication must be given effect as an anticipation only to the extent that it actually gave to the public information of a process of filtration. It is not competent to read into such a publication information which it does not give, or by expert opinion explain an otherwise uninforming statement by evidence of some apparatus or article not itself competent as an anticipation."

From *Naylor v. Alsop Process Co.*, 168 Fed. 920, we read:

"When it is sought to ascertain the state of the art by means of prior patents, nothing can be used except what is disclosed on the face of those patents. Such patents cannot be reconstructed in the light of the invention in suit, and then used as a part of the prior art. * * * Prior patents are a part of the prior art only by what they disclose upon their face."

In *Beckwith v. Malleable Iron Range Co.*, 174 Fed. 1009, affirmed on appeal in 189 Fed. 74, it is said:

"It is elementary that when it is sought to ascertain the state of the art by means of prior patents, nothing can be used except what is disclosed on the face of those patents. Such patents can not be reconstructed in the light of the invention in suit and then used as a part of the prior art."

And as late as December, 1915, we find the Court of Appeals of the Sixth Circuit saying in *Munising v. Sulphite Co.*, 228 Fed. 700, 703:

“Prior patents are part of the prior art only by what they disclose on their face.”

Citations might be continued indefinitely. The rule of law is an elementary one, and yet the learned counsel for appellant insists that he has a right “to read into” the prior patents something which is not there, in order to make out an anticipation. In a prior patent for a phonograph horn showing *paper* sections secured together by a *cloth* hinge, he says we must read into it *metallic* sections secured together by a *lock seam*; also that in a prior patent for a phonograph horn made of *wooden* sections secured together by *glue* and being in the form of a polygon *without any outward flare*, we must read *metal* sections instead of wooden sections, secured together by *lock seams*, and having an *outward flare* resulting in a bell shape. It is only in this way that he is enabled to spell out an anticipation from the prior patents. We fear that his reputation as a patent attorney can not have been well earned if we are to gauge it by the soundness of such argument.

The contention of anticipation is so preposterous that we shall not dwell upon it further, but shall proceed to the next defense, that of

ALLEGED INVALIDITY IN VIEW OF THE STATE OF THE ART.

This defense means that even if there is no technical anticipation, nevertheless the state of the art

was such as to preclude the exercise of the inventive faculty on the part of Nielsen in producing his horn. To put it in another way, the contention is that any mechanic skilled in the art could have produced the Nielsen device by the mere exercise of his mechanical skill without the aid of the inventive faculty. The process of argumentation pursued by appellant in this behalf is to pick out from the prior art the various elements of Nielsen's combination separately and individually, one from one patent, another from another, and still another from another patent, and so on, and with this data he builds up a composite structure representing the Nielsen horn, and then triumphantly explains that he got it all from the prior art merely by the process of selection. Such a course has been repeatedly condemned by the courts as wholly improper, and in that behalf we refer to the following language of the Court of Appeals for the 8th Circuit in *Naylor v. Alsop*, 168 Fed. 917:

“The prior art that has been brought to our notice is mainly literary. Defendants have ransacked patent offices in America and Europe, and brought together a formidable collection of patents. Many of them are paper patents, and others relate to remote arts. Piecing together excerpts and elements from this wide search, they have built up a formidable speculative argument to show how simple and easy was the step taken by Andrews. This is a form of argumentation familiar in patent litigation. Though it seldom succeeds, it is often the only recourse of the infringer. The patent law, however, has its proper place in the realm of actual industrial life and not in the limboes

of parchment casuistry. The merit of a patent is to be determined, not by its standing in dialectics, but by its actual effects in the art to which it belongs. Judged by that test, the Andrews invention was revolutionary. Within five years after its discovery it had been generally applied in the milling business, both in this country and abroad. It accomplished a new and desired industrial result simply, cheaply, and efficiently. In the presence of such an experience, speculative arguments based on the prior art can seldom prevail."

CHANGE FROM UNITARY TO SECTIONAL STRUCTURE.

The first particular wherein the Nielsen device is said to be void for want of invention is the statement that his horn is merely a change from a unitary structure to a sectional structure, and then follows a citation of authorities to the effect that it is no invention to construct an article out of several pieces which was formerly constructed out of one piece (Brief, p. 16).

That rule relates purely to a matter of mechanical construction where the change of construction does not change the article nor its function, but results only in greater cheapness, or convenience, or some such matter as that. Where the change of construction results in a change of function, a new result, then the rule has no application, but a wholly different rule applies. The other rule referred to is laid down by the Supreme Court in *Loom v. Higgins*, 105 U. S. 591, as follows:

“It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention.”

Such is the case here. Prior horns had been constructed of one piece, or, to use the words of counsel, were a unitary structure. The result was an imperfect reproduction of sounds accompanied by “metallic resonance or tintinnabulation”. Nielsen constructed his horn of a plurality of metal strips united together in a certain way and having a certain specific shape and form, with the result that he secured a horn which would reproduce musical sounds without “metallic resonance or tintinnabulation”. This was a new and useful result. No metal horn was ever known before which produced that result, and Nielsen’s metal horn was the first in the art to produce it. He did not merely produce a horn which was easier of construction, or cheaper in price, or more convenient in handling. Indeed his horn was more difficult of construction and higher in price than the prior horns. But his horn produced a new and useful result which made instantaneous appeal to the entire art.

At page 35 of his brief counsel asserts that where a patent relies for validity upon a new functional effect, it can be sustained only upon proof that this new functional effect was not only novel but also unexpected *a priori*. Even this argument is met by the Nielsen patent, for the witness Merritt

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testifies, at page 20 of the record, that prior to Nielsen the idea was prevalent in the phonograph trade that the defect of the metal horn could be eliminated by making it as seamless as possible, and that the belief was that the presence of seams caused a rattling or vibration which interfered with the purity of certain tones, voices, and instruments, and that the greatest purity of tone could be attained by making the horn seamless, for which reason the brass horns of the prior art were made without any seams. Now Nielsen adopted the directly opposite idea, to wit, that the horn must be made in sections, with a large number of seams, provided with exterior ribs. Therefore, his idea was in the words of appellant's counsel "not only novel but also unexpected *a priori*". We thank the counsel for having referred to this matter, for it otherwise might have escaped us. Unintentionally he has furnished the strongest kind of an argument for the validity of the Nielsen patent.

NEW RESULT PRODUCED BY NIELSEN.

In this connection appellant's counsel denies that the Nielsen horn produces any new result, or causes any acoustic improvement. At page 36, he says:

"We are unable to find in the record (nor have we any knowledge of) a single bit of competent legal proof that Nielsen's horn gives any acoustic improvement; on the other hand the record contains overwhelming affirmative proof to the contrary."

After making this broad statement he immediately proceeds to quote the testimony of our witnesses, Locke, Merritt, Pettit and Vale, which negatives his own assertion. He condemns Locke's testimony with the assertion that he is the president of the plaintiff corporation, for which reason presumably he is not entitled to any consideration.

He disposes of Pettit by saying he is a "young man", who had been a salesman of phonograph supplies. Apparently Mr. Pettit's youth is to be charged against him as a disqualification. The record (156) shows that he is 39 years old. Whether that age makes him too young to testify we leave to the consideration of the court. But it does appear from Mr. Pettit's testimony that he was connected intimately with the phonograph art since 1897 (Record 156) and that he was thoroughly familiar therewith, and with phonograph horns.

Counsel disposes of the testimony of Vale by the assertion that he is "a young man in the employ of plaintiff's counsel". By reference to page 816 of the record it appears that Mr. Vale is 39 years of age, and as counsel had already in the case of Mr. Pettit taken the position that such age was too immature, he now repeats the objection in regard to Vale.

In respect of the assertion that Mr. Vale is "in the employ of plaintiff's counsel", that we positively deny. He is not in the employ of plaintiff's counsel, but is engaged in the prosecution of his profession independently and for himself. He

happens to have offices adjoining those of plaintiff's counsel and that is the nearest he comes to being in the employ of plaintiff's counsel.

The testimony of our witness Merritt is disposed of by the assertion that it relates only to questions of opinion. The unsoundness of that contention will be apparent from reading the testimony of Mr. Merritt, which begins at page 108 and extends to page 137.

A further fling is taken at the testimony of the witnesses named, at page 40 of the brief, by the remark: "It will be observed that these depositions of plaintiff were all given *ex parte*". The facts in regard to that matter are that the appellant's attorneys were duly notified of the taking of these depositions in the usual and ordinary manner, but for some reason of their own they did not appear at the direct examination of the witnesses. This was certainly no fault of ours. But it further appears that at a subsequent day defendant appeared through the eminent attorney, Mr. J. Edgar Bull, and cross-examined the witnesses to his heart's content. The cross-examination begins at page 168 and ends at page 198.

Appellant's counsel, at page 40 of his brief, alleges that the testimony of plaintiff's witnesses shows "irrefutable instances of coaching". We shall not stop to bandy words with counsel on this subject, but content ourselves with saying that the charge is unworthy of counsel and should not have been made.

At page 40 he makes the broad assertion that the testimony of Pettit and Merritt, "aside from the unsatisfactory and incompetent testimony of Mr. Vale", is the only testimony in the record as to the acoustic advantages of the Nielsen horn. Surely counsel could not have read the record in its entirety, and we venture to refer him to the additional bits of testimony appearing therein on the subject.

Edison Advertisement of Dec. 15, 1907:

"The new horn and crane of the Edison phonograph affords just the needed touch. The one thing which the Edison phonograph needed to make it complete has been added—a large, handsome, prettily shaped horn, supported by a nickel-plated swinging crane. Each model has been so equipped, etc."

Edison Advertisement of Jan. 15, 1908:

"The horn is large, handsomely shaped, and exactly adjusted to the instrument's needs."

Edison Advertisement of March 15, 1908:

"The new horn of the Edison phonograph meets a long felt want. This new horn is big, shapely, and handsome. It sets the instrument off and gives to the reproduced sounds a clearness and sweetness not possible with other horns."

Federal Mfg. Co. Advertisement:

"A revolution in the phonograph horn. At last the Ideal horn has come. A scientific device, aiming at a pure, melodious reproduction of sound. * * * Besides, it eliminates all the bad points of the previous horns."

DEFENSE THAT NIELSEN'S INVENTION IS MERELY THE PRODUCT OF MECHANICAL SKILL.

Considering now the second contention that the Nielsen patent is invalid, as being the product of mere mechanical skill as distinguished from the inventive faculty, counsel works out his theory by showing that the separate elements of the Nielsen combination were old in the art, and he points out that it was old in the art to use metal as a material for phonograph horns, that it was old in the art to use a bellshape, that it was old in the art to join two pieces of metal together by longitudinal seams, that it was old in the art to use horns as inert conduits for the passage of musical sounds. He then pieces together all these various, scattered disconnected elements into a composite structure and then declares the same to be the product of a mechanic and not of an inventor.

The vice of this argument consists in assuming that the Nielsen invention was purely and simply a mechanical problem. Possibly if a mechanic had been told to build a metal horn in sections joined together, he could have done so, because the process of joining two pieces of metal together was well known. But that was not the whole problem which confronted Nielsen. The problem which confronted him was how to construct a metal horn which would obviate "metallic resonance or tinnabulation", and he conceived the idea, never before thought of, that this end could be attained by making the metal horn in sections. A useful

invention, in the sense of the patent law, resides in the initial mental conception of the result to be attained followed by the concrete embodiment thereof in mechanical form. Invention, therefore, in the sense of patent law is of a dual character. Mental conceptions alone are not useful inventions; neither are mechanical embodiments alone and by themselves new and useful inventions. The two things must be combined. Nielsen had the metal conception that the result which he desired could be attained by a certain construction of a metal horn, and he completed the idea by embodying it in the sectionally-constructed horn. That completed the process of invention and the result was a new and useful invention. It is idle to argue that any mechanic could have made the sectional metal horn if requested to do so. The problem was first to conceive the idea that the result could be attained by a sectional metal horn, and then it was an easy matter to construct such a horn. The invention resulted from the work of both head and hand. The head conceived it, while the hand put it into concrete form and made it useful to mankind. The pertinent inquiry, therefore, should be whether a mechanic could have made the original conception, and, after having made it, could he have embodied it in concrete form? It is clear beyond dispute that prior to Nielsen no other person had this conception, because other workers in the art tried to attain the result by other means. Sheble tried to obtain the result by covering the unitary metal horn with a cloth covering so as to absorb the vibrations.

Edison tried by wrapping his horns with tape. Others tried to obtain the result by discarding metal as a material and adopting paper, wood, cardboard, glass, papier maché, fiber, and such like. None of them had the Nielsen conception. He is clearly entitled to be called an inventor. As was said by the Supreme Court in *Potts v. Creager*, 165 U. S. 608: 155

“And this is not the less true if, after the thing has been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before. The apparent simplicity of a new device often leads an inexperienced person to think that it would have occurred to any one familiar with the subject; but the decisive answer is that with dozens and perhaps hundreds of others laboring in the same field, it had never occurred to any one before.”

And in *Webster Loom Co. v. Higgins*, 105 U. S. 591, it is said:

“Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention.”

And in the case of *Expanded Metal Co. v. Bradford*, it is said:

“It may be safely said that if those skilled in the mechanical arts are working in a given field and have failed after repeated efforts to

discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor. It is perfectly well settled that a new combination of elements, old in themselves, but which produce a new and useful result, entitles the inventor to the protection of a patent."

If, therefore, the argument be sound that the Nielsen idea is one which would have occurred to any skilled mechanic turning his attention to the subject, why is it that it did not occur to Edison, Hawthorne, Sheble, Emmons, George, Kaiser, Lawrence, Senne, Miller, Meeker, Stewart, and appellant's star witness, Mr. Rudolph M. Hunter, who is styled by appellant's counsel as "the celebrated talking machine expert"? We leave appellant's counsel to answer this question if he can.

In this connection we read from *Keystone Manufacturing Co. v. Adams*, 151 U. S. 144-5:

"Where the patented invention consists of an improvement of machines previously existing, it is not always easy to point out what it is that distinguishes a new and successful machine from an old and ineffectual one. But when, in a class of machines so widely used as those in question, it is made to appear that at last, after repeated and futile attempts, a machine has been contrived which accomplishes the result desired, and when the patent office has granted a patent to the successful inventor, the courts should not be ready to adopt a narrow or astute construction fatal to the grant."

THE PRIOR ART RELIED ON BY APPELLANT.

We have now arrived at the point of considering the prior art in detail as outlined in appellant's brief. We shall not follow the exact order of references as given by him, but the more logical one of proceeding step by step in the development of the art.

1. *The Conn patent, No. 624,301, of 1889*, is discussed at page 52 of his brief. This patent was not put in evidence, nor does it appear in the record. This fact, however, does not deter counsel from urging it as a part of the prior art in limitation of Nielsen's invention, his theory in that behalf apparently being that the court will take judicial notice of it. Such a proceeding is not allowable. The court does not take judicial notice of patents which are not put in evidence. We never saw the Conn patent. We know nothing about it, and we must respectfully decline to discuss it.

2. *The Berliner patent, No. 534,543, of 1895*. Counsel has interleaved opposite page 53 a cut from the Berliner patent showing a horn, and the same appears to be a bell shape. The Berliner patent does not relate to the horn, but to the method of recording vocal and other sounds. A horn is illustrated in the drawing, but not described in the specification other than by designating it "a sound-conveying trumpet 95, the flaring end 96 of which is turned towards the listener" (lines 9 and 10, page 5 of the specification). The material of which the horn is made is not specified, its construction

is not shown or given. It may have been made of metal, but the patent does not state. It is more likely that it was made of paper or cardboard or hard rubber. Counsel says at page 53 of his brief that "it was possibly composed of some combination like hard rubber", and yet he gravely asserts that we must read into the patent a horn made of sheet metal. All we know from the patent is that it is a *sound-conveying trumpet with a flaring end*. We know what a trumpet is, and it would seem, therefore, that the Berliner horn was of trumpet form similar to a musical trumpet made of some kind of undisclosed material, of a single piece without any sections or ribs. Consequently, there is not sufficient information in the Berliner patent to direct a person how to construct a Nielsen horn.

But still further, it is well settled that a drawing alone without verbal description is insufficient to anticipate a patent.

"It has been frequently held that drawings alone, unaccompanied by letter-press description, will never invalidate a patent."

New Process Co. v. Koch, 21 Fed. 587;

Seymour v. Osborne, 11 Wall. 555;

Reeves v. Keystone, 5 Fish. 456;

Mosler v. Lurie, 209 Fed. 364;

Gray v. Baird, 174 Fed. 417;

Uhlmann v. Bartholomae, 41 Fed. 138.

3. *Myers patent*, No. 647,147, of 1900. This invention shows a plurality of horns attached to a single phonograph for the purpose of projecting the

sounds in different directions. It is stated in the specification that the use of the single horn was defective, because it projected the sound in one direction only, and that the object of the invention was to remedy that defect by projecting the sound in all directions by the use of a plurality of horns on a single instrument. The specification says (line 47, page 2) that the horn "is made of cardboard or some light and durable material", and is constructed by cutting the cardboard into sections, laying edge to edge on a piece of textile fabric, and then gluing, after which the structure thus made is folded in the shape shown. In other words, it is a foldable horn made of cardboard strips glued together. Clearly there is nothing here of relevancy, and the only way in which counsel can *read out* of the Meyers patent any relevancy whatever is to first *read into it* metal strips joined together by outwardly-directed metal ribs in place of the cardboard strips, and this the counsel does in the light of the subsequent invention of Nielsen.

4. *The Runge patent, No. 692,363, of 1902.* The horn of this patent is called a "sound trumpet" and its form is that of the old B & G horn, a conical tube with an attached bell. The specification says that it is made of "any suitable material, preferably *non-metallic*—such, for instance, as tough paper, thin fabric, or celluloid". The body portion is made of a single sheet wrapped around a conical mandrel. There is nothing of relevancy in this patent, and again counsel has to read into it something which is not there.

5. *The Cairns design patent, No. 10,235, of 1877.* The object of this patent is stated to be a speaking trumpet. The specification calls it a tube, which is said to have the form of a truncated polygonal pyramid. The patent does not show of what material the implement is made nor its method of construction. It is a design patent merely for a speaking trumpet, intended to cover merely the polygonal form shown. We might speculate as to the material and as to the mode of manufacture, but speculation is not anticipation. Counsel says, at page 56 of his brief, that the implement is manifestly composed of sheet metal, but whether that be true or not he reads into the patent that feature. Even if this were allowable, it would not help matters, because then he would have to read into the patent not only sheet metal as a material but sheet metal in sections joined together by external ribs, and also a bell shape, which of course is not allowable. We have often heard that the naturalist Cuvier could from a single small bone conceive and build up the entire form of a pre-historic animal; but we venture to suggest to counsel that there is no such rule of patent law.

6. *McVeety & Ford, No. 34,907, of 1901, and No. 699,928, of 1902.* These patents are for a ship's ventilator, used to discharge the foul air from the hold of a ship. The first patent is for a design; the other for a mechanical construction. It is stated in the specification that the shape of the ventilator is that of a curved tapering figure in the form of a

cornucopia. A cornucopia is the ancient horn of plenty from which the goddess Fortuna was supposed to dispense her gifts among her votaries. Its form is too well known to require description. It is ordinarily made from a single piece of material, but McVeety & Ford propose to make theirs from strips of metal joined together at their edges by the ordinary lock seam of the tinsmith's art. These sections are straight for a portion of their distance and curved for the remainder. Counsel says that these patents are relied on for showing a prior mechanical construction available to Nielsen. If it was available to Nielsen, he did not adopt it. The shape and form are different from Nielsen's.

But a conclusive answer to this reference is that it is not for a phonograph horn nor for a device analogous to a phonograph horn, but is for a ship's ventilator to draw up by suction from the hold of the ship the foul, noisome fumes and gases which are there generated. Not only is the specific construction different from that of Nielsen, but the function of the device is wholly different, and it is stretching one's credulity beyond the bending point to assert that this ship's ventilator for carrying away poisonous vapors would naturally and spontaneously and without the exercise of the inventive faculty suggest the Nielsen horn. The two things are not analogous. This court fully considered the matter in the *Sherman & Clay* case where these patents were relied on, and in respect of these

patents, as well as of others in non-analogous arts, said:

“The very obvious objection to these patents as tending to prove that the patent issued to Nielsen for phonograph horns was void for anticipation is that they were all for articles other than phonograph horns, and, consequently, qualities claimed by Nielsen to be resultant in a phonograph horn by reason of the arrangement of strips of metal in a certain manner, and fastened together in a specified way, would be entirely lacking in any other instrument or article formed in any manner whatsoever. We shall not, therefore, attempt to set forth the distinguishing features of, or draw comparisons between, the horn for phonographs and similar machines patented by the letters issued to Nielsen, and the articles described in various American and British patents introduced in evidence. Such a procedure would serve no useful purpose, nor would it assist us in any degree to a solution of any of the questions arising on this appeal.”

7. *The Cockman patent (British) No. 5186, of 1903.* This is a wooden horn, stated to be made from “pine wood, such as is used in violins, mandolins and the like”. The wood is cut in strips and glued together at their edges producing a conical shape. It is stated that the wood of which the trumpet is made greatly decreases in thickness from the neck to the mouth in order that it may act by its own vibrations to reinforce the vibrations of the air in the vicinity of the large end, and it is further stated in the specification “the strips of wood forming a trumpet are as before stated cut *on the quarter* and in this way the trumpet is treated like a musical

instrument''. The fundamental idea of the patent is the use of wood instead of metal. Indeed the specification begins by saying that theretofore phonograph horns had usually been made of sheet metal and that they consequently possessed very inferior resonant qualities producing a very objectionable metallic sound which obscures the qualities and characteristics of the sound of the instrument or voice whose tones are being reproduced. To obviate these difficulties Cockman proposes to make his horn from wood, whereby he says that the qualities of the tones are greatly improved, metallic noises are avoided, distinct articulation is obtained, and minute vibrations are brought out. Then follows his statement as to making it from wood, etc. Consequently, there is nothing in this reference of any materiality, and the only way in which counsel derives any comfort from it is his statement that there must be read into the Cockman patent metal strips instead of wooden strips.

8. *The Marten patent, No. 738,342, of 1903.* Why this patent was cited passes our comprehension. It merely shows the old style B & G horn, consisting of a cone made of a single piece of metal with a spun brass bell attached by a circular seam. It is the horn which was superseded by the Nielsen horn.

9. *The Sheble patent, No. 759,639, applied for July 21, 1903.* This patent shows the old B & G horn with an outside covering of fabric designed for the purpose of absorbing the metallic vibrations

and thereby overcoming the defect of the prior art which Nielsen overcame. This patent is the very strongest kind of evidence which could be adduced showing the validity of Nielsen's patent. Sheble was an expert in the art. He noticed the presence of "metallic resonance or tintinnabulation" in the old B & G horn which rendered that horn defective. He undertook to remedy it, and his theory was that by covering the old B & G horn with a closely adhering fabric the metallic vibrations of the horn would be absorbed. It proved to be a flat failure and the horn was soon discontinued. Nielsen, coming afterwards, noted the same defect in the old B & G horn and undertook to remedy it in a different way, viz.: by constructing his horn of separate metallic strips joined, shaped, and curved to form the bell-shaped horn shown in his patent. This proved to be the correct theory and his horn superseded the Sheble and other horns of the prior art. The assertion of counsel is that the remedy provided by Nielsen for the known defect of the prior art horns was not the product of invention, but only mechanical skill, and that any person skilled in the phonographic art could have done the same thing. Yet we find Sheble, a most highly skilled mechanic in the phonograph art, trying to remedy the defect by other means, which proved ineffectual, and he never once suggested the remedy provided by Nielsen.

10. *The Gersdorff patent, No. 453,798, of 1891, and No. 491,421, of 1893.* These patents are for a

funnel used for filling receptacles with liquid. Ordinarily funnels are constructed of a single piece of metal or of two pieces secured together by longitudinal seams. Gersdorff proposed to construct his funnel of three pieces, joining the meeting edges of these pieces by a lock seam and soldering them together. This device relates to a distant and non-analogous art, and is fully covered by the remarks of this court in the *Sherman & Clay* case at page 94 heretofore quoted, which refers to devices found in other arts. The point for which appellant's counsel cites it is that of double use, and we shall consider these patents further when we come to that point of our brief.

11. *The Villy patent, No. 739,854, of 1903, and reissue of 1906.* Much space is devoted by counsel to this patent, but the subject-matter is fully disposed of by reference to the following quotation from the decision of this court in the *Sherman & Clay* case at page 95, viz.:

“The object of the Villy patent, as set forth in the specification, was to provide a horn or trumpet like device which could be folded when not in use so as to be capable of ready transportation, and which could be placed within the case of the phonograph, or in the pocket of the user, when it was to be applied to an ear instrument, or the like. The horn was to be made of a series of strips of paper, wood, linen, or other preferably flexible material, and there was to be a hinge-like connection between each of the strips. In substance, the claims of the patent for a collapsible but self-sustained phonograph horn, ear trumpet, or the like,

composed of a number of flexible strips having curved meeting edges and flexible connections between such edges. In brief, the great object of the Villy patent was a horn made of strips of flexible material joined by means of flexible connections at the edges in such manner that the whole would be collapsible. There was not involved in the Villy patent, as in the horn described in the Nielsen patent, the problem of preventing tintinnabulation or metallic resonance; and, indeed, in a horn composed of strips of paper, wood, linen, or other flexible material, such as Villy proposed to use in the structure of his horn, no precautions against tintinnabulation would, in the nature of things, have been necessary. In the material of which the strips were to be made, in the method by which they were to be joined, and in the primary object to be attained, the Villy and the Nielsen horns were vastly dissimilar. The Villy horn was made of strips of paper, wood, linen, or other flexible material; the Nielsen horn was made of strips of metal. The strips of the Villy horn were joined at their edges with flexible connections; the strips of the Nielsen horn were connected at their edges by means of longitudinal outwardly-directed flanges, forming a solid rib or seam on the outside of the horn. The primary object sought in the Villy horn was that it might be collapsible; the great object of the Nielsen horn was the prevention of metallic resonance or tintinnabulation. In no sense, as we view it, can the horn described in the Villy patent be deemed an anticipation of the horn described in the patent to Nielsen."

These views are clearly correct. The Villy patent has no relevancy whatever to the Nielsen invention save and except that it shows the bell-shaped form; but inasmuch as Nielsen does not claim such form

per se, the Villy patent becomes worthless for any purpose except as showing one of the many failures of the prior art. The sole object of the Villy invention was to provide a horn which could be folded up and stored away in a box when not in use and unfolded and attached to a phonograph when in use. To that end it consists of strips of paper, or other similar material, pasted together along their adjoining edges on a backing of linen to form a hinge-like connection, and when a sufficient number of these strips have been thus pasted together in the flat, they are folded into the required form and the two meeting edges are buttoned together so as to constitute a self-sustaining structure. Then, as occasion requires, the horn is detached and folded up into compact form and put away in a box. Villy was not confronted with the problem of building a metal horn, nor of building such a metal horn as would counteract "metallic resonance or tintinnabulation". That problem never entered his mind, so far as appears from the face of his patent, and we may safely conclude that he never thought of it. He did not undertake to solve the problem which Nielsen did, and this court was clearly correct in its conclusion that the Villy patent has no effect on Nielsen's.

Much stress is laid on the Villy reissue by appellant's counsel. It appears that the United States Horn Company acquired title to the Villy original patent and several years after the issuance of Nielsen's patent secured a reissue. Two remarks may

be made in respect of this matter: (1) Nothing which occurred after the issuance of Nielsen's patent can bear any relevancy to the matter in hand, because that was subsequent art and not prior art; (2) A reissue patent can be granted only for the same invention disclosed in the original patent, and no new matter or new invention can be inserted in such reissue, from which it follows that there is nothing in the Villy reissue which was not in the Villy original patent.

Appellant's counsel also refers to what he calls the "Villy metal horn", and opposite page 74 he inserts cuts of such a horn; but there is no such thing as a "Villy metal horn". Villy never had a metal horn. His horn was made of paper or similar material. This so-called Villy metal horn was made under the patent to *Berner, No. 926,235, of June 29, 1909*, which is interleaved between pages 74 and 75 of appellant's brief. That patent covers a horn made up of sections of metal of similar shape as that of Nielsen's connected together at their longitudinal edges by a metal hinge and adapted to be collapsible. This is conclusive proof of our position regarding the Villy horn, because it shows that when it was desired to build from metal a collapsible horn of the same shape as Villy's, inventive genius was required to do it, and a patent therefor was issued to this man Berner in 1909, containing 49 claims.

Nielsen taught Berner how to make a self-sustained horn composed of metal strips or sections

bell-shaped in form, and Berner then invented a way of making such a horn collapsible. The Patent Office issued a patent to Berner for his device, which is *prima facie* evidence of invention. Therefore, the issuance of the Berner patent not only confirms our theory regarding the Villy patent, but also confirms our theory regarding the presence of the inventive faculty in Nielsen's patent.

12. *The Metal Workers' Pattern Book.* The book put in evidence is entitled the fifth edition, printed in 1887. The book set up in the answer is stated to be the third edition, printed in 1884 (Rec. 17). Consequently, the book offered in evidence cannot be used for anticipation because not set up in the answer.

Furthermore, no proof of publication was made. The book was simply offered in evidence without any other proof (Rec. 275). Hence it is incompetent for any purpose. It does not prove itself.

But taking the book at its face value it is of no avail. It shows two diagrams, figures 512 and 516. The first relates to "a cornucopia"; the second to a "curved tapering horn octagonal in section".

A cornucopia is stated in the dictionaries and reference books to be either the mythological "horn of plenty", symbolizing peace and prosperity, or a paper cone for holding candies (Standard Dict.). In the arts it was used as a flower vase or for ornamental purposes in architecture. It was certainly never used as a phonograph horn. In the

McVeety & Ford patents, already considered, it was used as a ship's ventilator. The pattern book does not say what it is used for.

The other figure of the pattern book relates to a curved or bent horn, octagonal in cross section, similar to McVeety & Ford's ventilator.

In reference to these illustrations, the book merely describes how patterns may be cut, from which the devices are to be made. Presumably these patterns are cut from paper or cardboard, though no statement is made on the point. The book does not disclose the material of which the completed article is made, nor how the sections are joined, nor the presence of flanges or ribs, nor the use to which the article is put. It discloses merely a question of geometry in cutting paper (?) patterns, from which the article might be constructed if a person knew how to do it.

This publication is wholly and utterly insufficient as an anticipation under the rule laid down by the Supreme Court in *Seymour v. Osborne*, 11 Wall. 555, as follows:

“Patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention to the same practical extent as they would be enabled to do if the information was derived from

a prior patent. Mere vague and general representations will not support such a defense, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. Whatever may be the particular circumstances under which the publication takes place, the account published, to be of any effect to support such a defense, must be an account of a complete and operative invention capable of being put into practical operation."

In the light of the present advanced state of the art and after the Nielsen disclosure it may appear to some person of a speculative turn of mind that he could have produced the Nielsen device from the pattern book alone; but the correct way to look at this matter is for the expert to carry himself back mentally to the date of the pattern book and ask himself whether or not from that disclosure alone he could or would have conceived of the Nielsen invention, and after having so conceived of it, could or would he have constructed it from the information contained in the pattern book alone. To ask this question is to answer it in the negative.

The pattern book shows nothing materially different from McVeety & Ford's ship ventilator, which this court has already held, in the Sherman & Clay case, to have no anticipatory or limiting effect on Nielsen's patent. Hence the same ruling should be made with respect to the pattern book.

Appellant's counsel has also referred to the Senne patent, No. 811,897 of 1906, and opposite page 59

of his brief is a cut of the same. This is a subsequent, not a prior, patent. It was granted in 1906, whereas the Nielsen patent was granted in 1904. It was put in evidence for the purpose of showing how subsequent inventors copied after Nielsen. In that behalf it was a strong argument in favor of the Nielsen patent. Counsel says, at page 59 of the brief, that the Senne horn is probably the horn against which suit was brought as an infringement of the Nielsen patent. If counsel would only abandon his speculations and guesses and confine himself to the facts of the case, it would be easier to arrive at a correct solution of the issues involved. Whether or not this is the horn which was sued for an infringement is wholly immaterial.

13. *The French patent of Turpin, No. 318,742, of 1902*, is the last of counsel's references requiring consideration. It was before this court in the Pacific Phonograph Co.'s case and was argued by counsel for both parties at length. Nothing new regarding it is advanced by appellant herein.

In the specification of this patent it is stated that theretofore phonograph horns had been made of pasteboard, celluloid, glass or crystal, and metals, such as copper, tin, nickel aluminum and german silver, but that none of the first three named had been successful and that metal horns were the only ones employed in actual practice. The specification then goes on to say, however, that metal horns were defective, and in respect thereof uses the following language (*italics ours*):

“These horns give, whatever one may do, *metallic, nasal sounds* which take away all interest which the phonograph might have in itself, for it is impossible to recognize the recorded sounds, *because the sounds are unnatural*. It is thus that the violin cannot be suitably reproduced by a phonograph; that the high notes of a good light singer are *unnatural* and accompanied by a *metallic hissing* which disturbs the ensemble, that orchestral pieces are confused, etc.

“*All these disadvantages*, which absolutely harm the phonograph and which have prevented the phonograph, which is remarkable from more than one point of view, from acquiring the serious and scientific character which it ought to have, *are due to the metallic nature of the horns* which transform into a metallic sound a sound the most pure, first in the recording and then in the reproduction, hence finally into a sound of mockery for all tones and for all sounds.

“As a consequence of this state of things, the phonograph remains a simple and often disagreeable toy, instead of being an apparatus faithfully reproducing sounds such as it may have received, that is to say, a perfect instrument permitting easy recognition of the recorded sounds.”

It will be observed from the above quotation that this is the precise defect in metallic horns which the Nielsen invention undertakes to cure. The Frenchman noted its existence, though he has exaggerated it, and undertook by his patent to remedy the defect. Now, let us see what he has proposed to do.

He says that after having tried many different plans he found “that wood suitably worked and

selected can remedy the defectiveness of the present phonographs and render these instruments perfect". And continuing further along the same lines he says:

"Wood, indeed gives vibrations so natural that it accords with all instruments and above all with the human voice which it permits to be recorded and to be reproduced with a softness, a clearness and an extreme fidelity and the most delicate shades. One knows, indeed, that instruments of wood, whether string instruments or wind instruments, are those which approach the most to the human voice, such are the violin, the violoncello, the oboe, etc. Wood, is then of all materials that which conforms the best to the composition of a phonographic horn, as I have observed."

In other words, his remedy for the evil was to abolish the use of metal horns and adopt in place thereof wooden horns. His theory was the heroic surgical theory of amputating a diseased member instead of curing the disease.

He then proposes in his patent four different forms of wooden horns, viz.:

1. Horns turned in wood.
2. Horns made of a single piece of thin wood bent around a mandrel in the form of a cone.
3. Horns made from a plurality of strips of wood, all of the same kind, glued and nailed together in the form of a polygon.
4. Horns of polygonal form made of strips of wood of different kinds, and as a modification thereof the addition sometimes in the assemblage

of two strips of metal or glass on opposite sides of the horn.

In making the first type of horn, he takes a solid block of wood, places it in a lathe, and then turns it out in the form of a cone. There is nothing to interest us in that horn.

In making his second form shown by figures 2, 3, 4, 5, 6 and 7, he takes a single piece of thin wood, which has been immersed in boiling water or in a steam oven to make it pliable, and then wraps it around a mandrel of conical shape and glues the two meeting edges together. He then wraps other similar sheets around the first one in the same manner as before, and thus builds up a conical horn of a laminated structure. There is nothing in this form of horn to interest us.

His third form of horn is represented by figures 8, 9 and 10 of his patent. It consists of separate strips of wood, all of the same kind, glued together along their edges and attached to wooden posts by nailing and gluing so as to form a horn of polygonal shape.

Instead of wooden posts the patent states that the posts may be of angle iron, to which the wooden sheets are to be attached in some way or other not described.

A modification of this form of horn is shown in figures 14, 15 and 16, which he denominates "a truncated bell-shaped horn with metallic bracing". In this form of horn a metal ring extends

around the perimeter of the outer end, into which the strips of wood are inserted for the purpose of being held firmly in place. At the small end of the horn he provides what he calls "a concentric envelope", which in substance is a device somewhat similar to the ring at the outer end of the horn, the object being to insert in the end of the envelope the inner ends of the wooden strips, so that a horn is provided made of wooden strips glued together along their longitudinal edges and retained in place and shape by metal rings at each end of the horn. In other words, he has added to the polygonal wooden horn of his figure 8 the two end-retaining pieces described, for the purpose of holding the wooden strips securely in place. He then encircles this wooden polygonal horn with a metallic ring (marked in the patent by the letter O), in the manner of a hoop around a barrel. By shoving this ring down vertically over the horn he compresses the thin wooden staves, and inasmuch as the outer ends of these staves are securely held in position by the retaining clamping ring above described, the result will be to produce the bell-shape form, which is scantily illustrated in figure 14 of the Turpin patent.

The fourth form of horn referred to in Turpin's patent is the same as figure 8, except that the strips are of different kinds of wood. In figure 8 the strips of wood are all of the same kind, but in the horn now under consideration the strips are of different kinds. In describing this fourth horn,

the patentee says *one may* insert among the strips of wood "one or two strips of metal and also of glass". In that behalf the specification uses the following language:

"In order to obtain a more complete concordance of the sounds by synchronism or isochronism, one may advantageously construct the horn of strips of wood of different kinds and also add thereto one or two strips of metal and also of glass, so that when one records an orchestral piece, all the instruments find their harmonics and that the horn can vibrate in unison. If, for example, the horn is a duodecagonal pyramid, that is with 12 strips, one may put in opposition two strips of rosewood; two strips of metal which may be composed of bands of different metals; two strips of glass; two strips of tulip; two strips of red mahogany; two strips of walnut. One thus obtains an ideal orchestral horn. For the voice and the song, the violin, the instruments of wood, it is necessary not only to employ wood, but to vary the kinds, which the polygonal form of my horn permits. One understands, indeed, that all the woods do not vibrate equally. Thus the walnut and the beech render very well the grave sounds; the tulip and the white woods, the medium, and the mahogany and the rosewood the high notes. These different woods keep up among them and reinforce the sounds in vibrating in unison with their harmonics like the strings of a piano or of a harp. Such are the results and methods which I intend to patent by these presents."

It will be seen from the foregoing that the horn referred to is polygonal in shape and composite in character, consisting of thin strips of different kinds of wood, to which *may be added*, if desired,

two strips of metal or glass. The inventor considered that different woods produced different vibrations corresponding to the harmonics of the different pieces of the orchestra. Some of the pieces of the orchestra would respond to one kind of wood, some to another, and still others to metal and glass. Therefore, he assembled together these various kinds of wood and metal and glass to the end that each instrument of the orchestra would find its response to the particular strip best adapted thereto. In other words, each instrument of the orchestra would select the particular strip or panel of the horn with which it was in tune and disregard all the other strips. The violin sound, for instance, would avoid the two metal strips, and expend all its energy on the wood, because the patentee says a violin sound cannot be reproduced by a metal horn. And so each particular instrument would avoid the "bad" strips and select only the "good" ones. Such an idea is purely fanciful.

The relevancy of the patent is supposed to reside in the fact that the inventor suggests that into this assemblage of wooden strips *one may* insert two strips of metal "in opposition", and two strips of glass. By this is meant that the two metal strips do not adjoin each other, but that the first one is placed on one side of the horn and the second one on the opposite side, thus presenting the case of a metal strip joined on each side to a wooden strip. The same disposition of glass strips is also made. No direction is given as to how these two

strips of metal are to be attached to the adjoining strips of wood. The wooden strips are glued together, but it is apparent that such joining between wood and metal strips would be ineffective. The patentee does not disclose how the edges of the metal strips are joined to the edges of the wooden strips. The same remark applies to the glass strips. It is clear that glass can not be glued to wood or anything else, and how the patentee proposes to connect these glass strips to the wooden strips is not disclosed in the patent.

And still further, the patent does not disclose any form of outwardly extending flanges forming ribs on the outside of this horn. On the contrary it shows the wooden strips joined together by glue.

Neither is this fourth form of horn bell-shaped. It is in the shape of a polygon made up of straight-sided separate strips glued together. In fact it would be impossible to make it bell-shaped unless the two glass strips were moulded into the appropriate curved form, concerning which the patent says nothing. The bell-shaped horn of figure 14 is a modification of the horn made of all wooden strips shown in figure 8.

The use of these two metal and glass strips is nothing more than a vague suggestion. They are not prescribed as a requisite to the horn, but it is merely said that "one may add" them to the wooden strips. We assert without fear of successful contradiction that there is no sufficient description in this Turpin patent of a bell-shaped horn com-

posed of an assemblage of wooden strips with two metal strips and two glass strips, and of course there is no description of a horn found there composed of all metal strips. The limited use of metal there referred to is nothing more than a suggestion, but suggestions are not anticipations. To constitute an anticipation the prior patent must show and describe the implement in such language as to enable a person skilled in the art to construct and use the same for a useful purpose. This Turpin patent falls far short of doing so.

We find a parallel case in *Asbestos Shingle Co. v. H. W. Johns Manville Co.*, 184 Fed. 620. There a patent for the use of a certain material was sought to be invalidated by the suggestion contained in a prior patent of the possible use of such material. In overruling this contention the court uses the following language:

“The defendant’s theory is that Sachs must have meant by cements, hydraulic cements; that by the manufacture of cardboards he must have meant the use of the usual machines; and that by the suggestion which he made of the uses of his substance he therefore disclosed completely all that Hatschek did. That is not enough; the art must be enriched by more than fruitful intimations, untested suggestions, or pregnant surmise before the subsequent comer who has elaborated and proved the invention may be deprived of his right. Happy intuition is no doubt necessary to an inventor, but it is not the whole of his endowment; to benefit his art he must show to other men by more than mere sketchy suggestion how they may practice what he has discovered.

Perhaps Sach's patent might have served as a good starting point for real addition to the art, but as it stood it was no more than that."

The court then refers to the case of *American Graphophone Co. v. Leeds & Catlin Co.*, 170 Fed. 331, where the following language was used:

"The naked assertion that a certain result has been accomplished without stating how, without describing the means which produce the result, is insufficient as an anticipation."

Similar cases referred to by the court are:

Loew Filter Co. v. German-American Filter Co., 164 Fed. 855, and

Naylor v. Alsop Process Co., 168 Fed. 911, both of which cases are aptly in point.

These cases effectively dispose of Turpin's patent as an anticipation. It may also be remarked that this Turpin patent is a mere paper patent which never went into use. It made absolutely no impression on the art, and is nothing more than one of the numerous vagaries which we find scattered throughout the art.

And still further, the Nielsen idea is not disclosed even in the vaguest form by suggestion or otherwise in the Turpin patent. The Nielsen idea is to retain metal as the material for the horn, but to so modify it in form and construction as to produce vibrations of such small amplitude as to render the metallic sound inaudible. Nielsen was the first person to make it known to the world, and that is the essential principle of his invention.

There is not the slightest hint of this idea in the Turpin disclosure. The only thing which appellant relies on in this connection is the vague indefinite statement that *one may add* two strips of metal "in opposition" in the assemblage of wooden strips which Turpin proposes to use, and from this statement it is claimed that the world was informed of the horn made entirely of metal strips, such as described by Nielsen, and resulting in a utilization of the scientific principle forming the basis of the Nielsen invention. The contention is preposterous. If a valuable patent can be destroyed by such vague and shadowy suggestions, then the patent laws might as well be abolished.

We also call the court's attention to the fact that this Turpin patent has already been before the court. In the case against Pacific Phonograph Co., it was used by the defendant therein in opposing the motion for preliminary injunction, and it was there vigorously urged that the Turpin patent is an anticipation. Judge Van Fleet gave the matter his most careful consideration and concluded that this Turpin patent was insufficient as an anticipation. He was thoroughly familiar with the situation. The matter was not slurred over, but was carefully and exhaustively considered. The learned patent lawyer from New York argued the matter *in extenso*. After full consideration, Judge Van Fleet held that the Turpin patent had no effect whatever upon the Nielsen patent, and granted a preliminary injunction. An appeal was taken to this court where the order was affirmed.

DEFENSE OF DOUBLE USE.

This defense is discussed between pages 84 and 105 of appellant's brief. It is based on the Gersdorff patents heretofore considered. Those patents show a funnel for pouring liquid into receptacles, which is constructed of three separate pieces joined together by an appropriate seam. The argument is that this funnel is of the same material, shape, and mechanical construction as a Nielsen horn, but on a smaller scale, and although it was designed only for pouring liquid in a vessel, nevertheless it could have been used as a phonograph horn; and to complete the argument, it is contended that a phonograph horn is nothing more than a funnel, and that any funnel which fits a phonograph will perform the function of a phonograph horn. Therefore, inasmuch as a phonograph horn is a funnel and a funnel is a phonograph horn, the two things are the same, and Gersdorff's vinegar funnel is Nielsen's phonograph horn.

This strongly reminds us of Byron's lampoon on Wordsworth, in which the poet is characterized as one,

“Who both by demonstration and example shows
That prose is only verse and verse is only prose.”

The doctrine of *double use* is an interesting one and we have heretofore on many occasions argued it *in extenso*. Time forbids a repetition of the argument in this case, and we shall therefore content ourselves merely with stating general results.

In general a double use exists where an old contrivance from an analogous art has been adopted and applied to a new use in the art in question without any change in the manner of application and without producing a new result distinct in kind.

Such is the ruling in the cases of

Tucker v. Spaulding, 13 Wall. 453;

Brown v. Piper, 91 U. S. 37;

Pennsylvania v. Locomotive Co., 110 U. S. 490;

Roberts v. Ryer, 91 U. S. 157;

St. Germain v. Brunswick, 135 U. S. 230,

and many others of similar import.

On the other hand, if the prior use of the old contrivance was in a distant and non-analogous art, or if its use in the new art was accompanied with a change in the manner of application, or if its use in the new art produces a new and useful result different in kind, then this new use is not a double use and the contrivance is patentable in its new situation.

There are many cases sustaining this position. The most notable is that of *Potts v. Creager*, 155 U. S. 597. The lower court had declared the patent void as for a double use (44 Fed. 680); but the Supreme Court reversed the ruling and held the contrivance patentable. The patentee had merely substituted longitudinal ribs of glass for longitudinal ribs of metal. With this exception the machine of the patent was of the same construction

as the machine of the prior art. But the patentee used the contrivance for a distinct and different purpose, and the court said:

“But where the alleged novelty consists in transferring a device from one branch of industry to another, the answer depends upon a variety of considerations. In such cases we are bound to inquire into the remoteness of the relationship of the two industries; what alterations were necessary to adapt the device to its new use, and what the value of such adaptation has been to the new industry. If the new use be analagous to the former one, the court will undoubtedly be disposed to construe the patent more strictly and to require clearer proof of the exercise of the inventive faculty in adapting it to the new use—particularly if the device be one of minor importance in its new field of usefulness. On the other hand, if the transfer be to a branch of industry but remotely allied to the other, and the effect of such transfer has been to supersede other methods of doing the same work, the court will look with less critical eye upon the means employed in making the transfer. Doubtless a patentee is entitled to every use of which his invention is susceptible, whether such use be known or unknown to him. But the person who has taken his device and, by improvements thereon, has adapted it to a different industry, may also draw to himself the quality of an inventor. If, for instance, a person were to take a coffee mill and patent it as a mill for grinding spices, the double use would be too manifest for serious argument. (Here the court cites many other instances of double use.)

“Upon the other hand we have recently upheld a patent to one who took a torsional spring, such as had been previously used in clocks, doors and other articles of domestic

furniture, and applied it to telegraph instruments, the application being shown to be wholly new. *Western Electric Co. v. La Rue*, 130 U. S. 610. So also in *Crane v. Price*, Web. Pat. Cas., 409, the use of anthracite coal in smelting iron ore was held to be a good invention, inasmuch as it produced a better article of iron at a less expense, although bituminous coal had been previously used for the same purpose. See also *Steiner v. Heald*, 6 Exch., 607.

“Indeed, it often requires as acute a perception of the relation between cause and effect, and as much of the peculiar intuitive genius which is a characteristic of great inventors, to grasp the idea that a device used in one art may be made available in another, as would be necessary to create the device *de novo*. And this is not the less true if, after the thing has been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before. The apparent simplicity of a new device often leads an experienced person to think that it would have occurred to any one familiar with the subject; but the decisive answer is that with dozens and perhaps hundreds of others laboring in the same field, it had never occurred to any one before. The practiced eye of an ordinary mechanic may be safely trusted to see what ought to be apparent to every one. As was said by Mr. Justice Bradley, in *Loom v. Higgins*, 105 U. S. 580, 591; ‘Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention’.

“As a result of the authorities upon this subject, it may be said that if the new use be so analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty.”

The same views were expressed in *National Cash Register Co. v. Boston Cash Indicator & Recorder Co.*, 156 U. S. 502.

Apply the test of this rule to the case in hand and it will be perfectly apparent that Nielsen's horn is not a case of double use of Gersdorff's funnel. The art of pouring liquids into a vessel through the medium of a funnel was surely a remote and non-analogous art. It bears no relevancy whatever to the art of reproducing musical sounds through a phonograph horn. No one seeing Gersdorff pouring vinegar into a jug by means of his funnel would ever conclude that such a funnel could be used for delivering musical notes from a phonograph, nor for delivering them in such way as to obviate “metallic resonance or tintinnabulation”. To our mind the argument verges dangerously on the ridiculous.

Furthermore, in producing his horn Nielsen has changed from the form of construction shown in Gersdorff's funnel. He has produced a different shape, to wit, the bell-shape, or, as it has been styled by this court, a flower. This shape is not a cone.

It provides a substantially convex surface on the interior and a substantially concave surface on the exterior, whereas Gersdorff's funnel is conical in shape with a concave surface on the interior and a convex surface on the exterior. It is not necessary to dwell upon the effect of these mechanical changes. All that is necessary is to note that there are mechanical changes in the construction, because under the doctrine of double use the old device must be used in its new environment without any change in its mechanical construction. It is too palpable to admit of argument that there are differences in mechanical construction between the Gersdorff funnel and the Nielsen horn.

And finally, the Nielsen horn produced a new and useful result never attained before, to wit, the elimination of "metallic resonance or tintinnabulation" in a phonograph horn made of metal.

We submit that appellant's contention as to double use is wholly untenable, and we dismiss the subject with the oft repeated quotation from the case of *Loom v. Higgins*, where it was said of a similar contention,

"This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed—one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over

it; but they certainly failed to see it, to estimate its value and to bring it into notice. * * * Now that it has succeeded, it may seem very plain to anyone that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention."

THE DEFENSE OF LACHES AND ESTOPPEL.

This defense is argued between pages 104 and 143 of Appellant's Brief.

The answer, under paragraphs XVI and XVII, beginning with page 21 of the record, in substance asserts that appellant purchased all its horns from the Hawthorne Companies (composed of Hawthorne and Sheble); that prior to 1906, and continuously since then, those concerns, together with Tea Tray Co., and Standard Metal Co. of New Jersey, openly and notoriously made and sold such horns, and that the appellant, together with the Victor and Edison Companies, openly and notoriously used and sold the same; that during all of said times, plaintiff and its predecessor had full knowledge thereof, and made no protest except that on February 10, 1906, plaintiff's predecessor notified Hawthorne & Sheble of said infringement, but that Hawthorne & Sheble replied that the patent was invalid and that they would continue their infringement, and also.

that in May, 1906, the Victor Company was likewise notified, but refused to desist; that in view of the said facts the appellant

“has long since been led to believe, and was justified in believing, that said Hawthorne & Sheble and said Tea Tray Co. had the perfect right to manufacture the horns aforesaid and to sell the same, and that this defendant had the perfect right to acquire and use and sell the same without interference by any patent-owner, and that, relying upon the consistent conduct aforesaid of said U. S. Horn Co. and this plaintiff, during all the period aforesaid, and their said acquiescence in the putting out of said horn, this defendant was induced to expend, and did expend, large sums of money in acquiring for the benefit of its customers the horns understood to be now complained of and in delivering the same to them; and that said horns were so sold because of their attractive dress and appearance and not because of superior acoustic qualities. Wherefore, this defendant says, that it is contrary to equity and good conscience for complainant to maintain against this suit in equity or to obtain an injunction or an accounting or any other relief whatever.”

Not a word of proof to sustain the above allegations was offered by appellant in the court below. Such a defense, of course, is an affirmative one and must be sustained by proof. Yet no word of proof was offered, and appellant's counsel now relies upon these allegations of his answer as if they had been sustained by proof. He even copies into his brief the two paragraphs of his answer setting up these defenses, and then proceeds to argue the same as if they had been proven.

We understand the defense of laches and estoppel to be based on the theory that the plaintiff has done something or has failed to do something which has induced and led the defendant to believe that he had a right to commit the acts which are charged to be an infringement, and that, thinking he had such right, he was induced to expend large sums of money in carrying on those acts, and that the patent-owner, after inducing him to follow such course, waited for an unconscionable length of time and then, at the eleventh hour, brought suit. This defense is nothing more than the well-known doctrine of estoppel *in pais*, applicable not alone to patent matters but to all matters. This theory is recognized as correct by the appellant's answer which, as heretofore quoted, sets up the contention that the appellant, by reason of the acts of the plaintiff, was led to believe that it had a right to sell these horns with impunity, and that, in reliance upon this belief, was induced to expend, and did expend, large sums of money in the business. *There is not a scintilla of evidence to sustain these allegations.* No officer, agent, or employee of the appellant, nor any other person was called as a witness to testify thereto. The record is a blank on the subject, and nowhere is any reference found to it except in the allegations of the answer.

At page 109 of the brief, it is alleged that during a period of nine years plaintiff was silent, permitting defendant to expand its business and incur

great expenditure all without interference or any adequate assertion of the plaintiff's alleged right.

And at page 124 it is alleged that this defendant has been lulled into security and into making investments by reason of the conduct of the plaintiff in its delay in bringing any test suit to trial; also that the defendant believed until this suit was brought that plaintiff's rights were worthless and had been abandoned.

It is difficult to deal patiently with such outrageous statements. There is not a word of evidence in the record to sustain them, nor was there any attempt to sustain them by evidence. They are simply the bald, unsupported statements of counsel.

It does not even appear from the record when the appellant began its infringement or how long it was continued. The only evidence in the record as to the time of infringement is the stipulation under which the case was tried, appearing at pages 29 and 30 of the record, in which we find the following:

"That within six years prior to the commencement of this suit in the Northern District of California and elsewhere in the United States, defendant sold horns for phonographs or graphophones similar in all respects to the two horns referred to in the affidavit of W. H. Locke Jr. on motion for preliminary injunction and stated in said affidavit to have been purchased by him on October 4, 1913, from Columbia Graphophone Company at New York; and that within six years prior to the commencement of this suit, defendant issued and circulated catalogues entitled 'Columbia Graphophones—M—250,' of which a copy is hereunto

annexed, and showing at pages 11, 13, 15, 21, 35, 37, 39 and 41, cuts and illustrations of horns sold by defendant."

According to this stipulation, which is the only evidence on the point, the defendant's infringement occurred at some time *within six years before the suit was begun*, but at what particular time within those six years it began does not appear. So far as the record shows, the infringement may have begun only a few days before the suit was filed.

In this state of the record, how is it possible for this court to find as a fact that the infringement had been continuing nine years before the suit was filed, or that the defendant was induced to enter into the infringement by the commission or omission of any act on the part of the plaintiff, or that the defendant was thereby induced to expand its business, or expend large sums of money, or was lulled into security in making investments, or that it believed that the plaintiff had abandoned its claims and never intended to bring suit, or that the appellant believed that it had a right to sell the horn?

All cases in a court of justice must be determined on the evidence and not upon the assertions of counsel unsupported by any evidence whatever. This matter of laches is not before this court for adjudication because of an entire absence of evidence to sustain it on the part of the appellant.

Before closing, we cannot refrain from noticing a most inexcusable and outrageous matter, beginning

at page 116 of appellant's brief, where it is there suggested that this is either a charity suit or a speculative suit or that Mr. Locke failed to tell the truth when he pleaded financial stringency of himself and the plaintiff.

If by the term "charity suit" the counsel intends to charge that we, as counsel for plaintiff, have undertaken the litigation without demanding prepayment of a cash fee, that is a matter which has not the remotest connection with the issues in the case, and cannot possibly be of any interest to the court. It has frequently happened in our practice of twenty-five years that we have prosecuted infringement suits for poverty-stricken inventors without demanding from them prepayment of a cash fee. Is it possible that this course can be imputed to an attorney as a matter of reproach and condemnation? On the contrary, is he not thereby living up to the traditions of the profession, which require that he shall aid the weak and the helpless? Never yet have we turned away from our office a poverty-stricken inventor having a meritorious case, on the ground that he was not able to pay for our services, and we do not expect ever to do so in the future.

What counsel means by calling this a "speculative suit" he does not inform us, but he evidently intended that term to be used in some kind of a derogatory sense. Whether it be speculative or otherwise is not the issue before the court, and we venture to remark that if this court shall find the patent to be valid and that it has been infringed, it will

not concern itself regarding any speculative feature it may have, whatever may be the meaning of that term as used by appellant's counsel. It is frequently the case with infringers to heap abuse upon the patent-owner and his counsel and to attribute to them reprehensible motives, such as a desire "to fill their coffers with tribute money to which they are not entitled either in law or equity" (Appellant's Brief, 109). Such statements are unworthy of an attorney having an appreciation of the dignity of his profession.

There are other improper matters contained in Appellant's Brief, and especially on pages 121, 122 and 123. They are so irrelevant to the issues involved and are of such palpable impropriety, and so contrary to the proprieties, that we shall not dignify them with an answer.

CONCLUSION.

Interest rei publicae ut finis sit litium says the maxim. This litigation has been going on uninterruptedly for over five years, and the defense has been of the fiercest and most determined character on the part of the infringers. Some idea of the nature of the attack on the patent will be gathered from noting that the answer in this case comprises sixteen printed pages, in which seventy-nine prior patents and publications are set up as anticipations (American, British, French and Belgian), while eighty-one instances of alleged prior use are speci-

fied as having occurred in the states of New York, Pennsylvania, Connecticut, Missouri, California, New Jersey, Maine, Iowa, Colorado, Massachusetts and the District of Columbia. The entire United States, from the Atlantic to the Pacific and from Canada to the Mexican border, has been raked over as with a fine-toothed comb in search of evidence. Eight different suits have been instituted and prosecuted. Ten different hearings have been had in the District Court and five in this court. Fifteen different lawyers have appeared against us—three from New York, four from Philadelphia, one from Orange, one from Chicago and six from San Francisco. Seventy-nine witnesses have been examined. Depositions have been taken at New York, Philadelphia, Newark, Hartford, Pittsburg and San Francisco, resulting in several thousand pages of testimony. These facts appear from records in this court. Every point that could be suggested by the ingenuity of counsel has been raised, and every point so raised has been adjudged in favor of the plaintiff. Yet the case is really a plain and simple one, free from those nice distinctions and difficult questions so often met with in patent practice. In spite of these facts, the infringers are continuing their vicious and vindictive opposition, which appears to us now in no other light than that of a deliberate obstruction of justice. Their scheme seems to be to wear us out by endless opposition. Two of them, Pacific Phonograph Company and Sherman Clay & Company, took appeals to this court, and by giving small

and insignificant bonds secured a stay of the accounting; but when their appeals were reached in this court they voluntarily dismissed the same, without even printing the record, thereby showing, in our opinion, that they never were prosecuted in good faith, but only for the purpose of delay. After the accountings are taken, they will probably appeal from the final decrees against them. Defendant in the case at bar has likewise given an insignificant and insufficient bond to stay the accounting, said bond being in the sum of \$5,000.00. The insufficiency of this bond will be apparent when it is noted that the Columbia Graphophone Company is one of the three great phonograph companies of the world, and in all probability has sold over a million horns. They continued to sell these horns up to the very day on which the preliminary injunction was granted against them. The opposition of the infringers now appears to us to be of a purely factious kind with a view solely to postponing the date of the accounting. But we have an abiding faith in the efficacy of the law, and although the law may be slow, it is nevertheless sure.

Dated, San Francisco,

May 27, 1916.

Respectfully submitted,

JOHN H. MILLER,

Counsel for Appellee.

